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FRANK: G. RUFFIN, EDITOR.

THE SOUTHERN PLANTER.

DEVOTED TO

AGRICULTURE, HORTICULTURE,

AND THE

HOUSEHOLD ARTS.

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THE SOUTHERN PLANTER

Devoted to Agriculture, Horticulture, and the Household Arts.

Agriculture is the nursing mother of the Arts. —*Xenophon.*

Tillage and Pasturage are the two breasts of the State.—*Sully.*

FRANK. G. RUFFIN, Editor. F. G. RUFFIN & N. AUGUST, Prop'rs.

Vol. XVII. RICHMOND, VA., APRIL, 1857. No. 4.

PLAN OF INSTRUCTION IN THE PRINCIPAL AND AUXILIARY DEPARTMENTS OF THE SCHOOL OF AGRICULTURE AT THE UNIVERSITY OF VIRGINIA.

We shall not, by a long preface, repel the reader from the following plan of instruction which a competent hand has prepared, and now submits to the public judgment. We have read it diligently, as we advise all others to do the same. Those whose education has taught them the necessity of including agriculture among the liberal professions will here see the correctness of their opinions demonstrated by a plain statement. Those who think it unnecessary will find by a bare perusal of this synopsis and the exercise of a little reflection, that there is nothing here, the knowledge of which would not advance them in the practice of their art.

It has been politely handed us by Mr. Franklin Minor, one of the committee charged with the arrangements of Col. Cocke's munificent donation, and whose exertions in the cause of agricultural education have been so ardent and persistent from the organization of the society. We are not permitted to give the name of the author; but we know him well, and can assure our readers that he is a gentleman of fine intellect, thoroughly trained and highly cultivated; himself an adept in what he here prescribes; and of an age and judgment too mature and ripe to act under the impulses of mere enthusiasm.

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As a basis for the organization of the proposed "*School of Agriculture*" at the University of Virginia, the following suggestions are submitted:

Regarding it as unnecessary to recite in this connexion, the advantages which are likely to accrue from this school to the Farming Interest, and to society at large, let it be proposed to divide the *Department of Agriculture* into

I—"*The School of Theory and Practice of Agriculture.*"

II—"*The Supplementary Department,*" or ["*Preparatory Scientific Department.*"]

The late President of the Agricultural Society of Virginia, in his "Report" to the "Assembly," has indicated the branches of special and general [or collateral] knowledge which these departments should embrace, assigning the whole to three professors. But, until the endowments, of which his liberality has supplied so material a part, shall have been con-

sumated, the existing schools of the University may be looked to for aid. It is supposed that these may supply in a series of lectures prepared and delivered, for a prescribed fee, to the class of the "School of Agriculture," all the instruction not pertaining to the "Speciality."

Recognizing the importance of a judicious initiation to the ultimate success of this enterprise, especial care seems necessary in adjusting certain preliminaries, such as

1. The conditions, in respect of age, morals and education, upon which pupils may be admitted into the School.

2. The *course of study* to be persued in the two "Departments."

It may, with reason, be doubted whether any conditions of admission need be prescribed, leaving the question where it is left in the schools of Law and Medicine, to the discretion of young men and their friends, tested by subsequent conduct and progress.

If, however, in accordance with usage in the most distinguished agricultural schools in Europe, any terms of preparation be designated, they may be,

1. Ability to read the *English language* correctly, in prose and poetry; to write a fair hand; to compose, upon the occasion, an essay in English, twenty or more lines in length, correctly spelled and dictated.

2. Acquaintance with the theory and notation of Arithmetic; with the four great rules, addition, substraction, multiplication, division; with Fractions, vulgar and decimal; with the extraction of roots; with proportion and progression.

3. A knowledge of that portion of *symthetic Geometry* which treats of lines, plane angles and curves, and plane surfaces.

4. Good moral character.

The *course of study* ought to be sufficient to ensure an amount of *mental training*, with *actual attainments in agricultural science, and the kindred branches of learning, proportioned to their dignity and importance: with a provision, however, that the course may be accomplished by youny men of fair capacity, possessing the requisite preparation, in one session of nine months.*

When, by experience of its beneficent results, prejudices shall have been removed, and popular interest awakened, the standard may be, by degrees, advanced, until two sessions will be required to complete the course.

Another step will be, to divide the class into two, *a Junior* and *a Senior*. The students who compose them will be selected according to the usual rules of greater or less proficiency.

It will be the province of the Professors to arrange, by concert among themselves, the *several parts* of the whole "curriculum," so that each shall have its proper place and consideration, in reference to all the others. Thus:

The "accessory" or "Supplementary Lectures" as being designed to illustrate the chief subject, Agriculture, will appropriately belong to the first part of the session. Their application will be found in the studies of the latter half.

In like manner, the professor of *Agriculture proper*, (the "Theory and Practice of Agriculture") will occupy the earlier months of the session, with subjects purely agricultural. If, in the classification hereinafter to be presented, some topics are brought up too soon, they will have to be postponed until the class may have received in the co-ordinate schools, suitable preparation.

The supplementary lectures, having, by supposition, been completed in the first 4½ or 5 months, the Professor of Agriculture will devote the remainder of the session, to a continuation of those subjects which are simply Agricultural, and to the discussion of what requires reference to the preparatory scientific instruction.

In the meantime, also, this professor may have gathered from the class, those who, by better preparation and superior diligence, are fitted to be *seniors*.

To all of this class, who are found upon examination, duly qualified, *Diplomas* may be granted.

In that department which we have designated "*Theory and Practice of Agriculture*," let us attempt *a general classification* of the topics which present themselves in contemplating the whole subject. After which, it may be useful, in furtherance of the action of the "Special Committee," to develope in somewhat copious detail, the particulars into which some leading *heads* may be resolved.

Having completed this, we will exhibit

a similar *synopsis* of Department II., resolving in like detail, at least one of the principal divisions. So that we may form an appreciative estimate of what is to be taught, and even approximate to the number of *lectures* by which it may be accomplished. Thus:

"THEORY AND PRACTICE OF AGRICULTURE."

General View.

A.—*Definition of Term Agriculture, &c.*

B.—*History and Literature of Agriculture, Schools, &c.*

*a.** In times preceding the building of Rome.

b. In times succeeding that event, to 15th century, especially in Britain from Roman conquest to Agricola, &c.—During Saxon Dynasty, &c.

c. On continent of Europe, during same period.

d. From its revival in reign of Henry VIII. of England and Elizabeth, to end of *civil wars.*

e. From civil wars to Geo. III. throughout world.

f. From Geo. III. to present period.

g. Particular History in Va. since 1800.
Literature of do.

h. Consideration of Text Books.

i. Agricultural Schools.
1. In Europe, Plans of, &c.
2. In United States, &c.

C.—*Agricultural Economy.*—Definition.
Divided into consideration of
a. Land. *b.* Labor. *c.* Live stock.
d. Capital (circulating or floating.)
e. Valuable proceeds.

a. LAND.—*Soil.* 2. *Water.* 3. *Minerals.* 4. *Forests.*

Soil.—Definition—
Varieties—as Argillaceous.
Siliceous, Turf-lands.
Subsoils, Loam, &c., &c.
Value (in exchange and in use)—how affected by
Geological characters.
Climate, exposure.
Facilities of transportation.
Density of population.
Staple crops, morals, &c., &c.

* *Note.*—These periods are selected partly because of their general prominence in Chronology, and partly because they mark eras in the History of Agriculture.

Management. Systems of Field culture
on Continent of Europe.
In Great Britain and Ireland.
In U. S. A., &c., &c.
Nomenclature of
Farm operations.
" Tools.'
" Buildings, &c.
Selection of a Farm.
Principles by which guided.
Character of Soil and Exposure.
proportion of cleared and Timber—Land;
Quantity and quality of Stone;
Bottom land, and up land;
Buildings of brick, stone or of wood &c., &c.
Under good enclosures or not;
Subject to overflows;
" foul growths;
Supplies of water for all purposes.
Contiguity to markets, mills, shops, schools, &c.
Principles which indicate how much *debt* may be incurred in buying a farm.
Division of—into *Fields*, decided by
Position with regard to barn and stables.
" " Water.
" " Ploughing and relative productiveness of Soils.
——into *Lots*, for grazing, truck crops, &c.
——into *Meadows*, &c.
——into *Orchards*, &c.
What proportion of Wood land to retain, &c.
Rotation of Crops—Theory and methods of.
Tillage—By ploughs, by hoe, by spade, &c.
By *Ploughs.* Origin, history, improvements.
Philosophy of construction for Cleaving; Turning; Draught.
Varieties—1 horse, 2, 3, 4, &c. Horse.
Principles controlling set of point and beam, &c.
Subsoil ploughs—principles & requisites.
Different kinds of *furrowing—Theory, &c.*
Proper state of land for ploughing, in Summer.
Proper state of land for ploughing, Fall, &c. *Principles.*
Principles which govern this with regard to wet, dry, &c.

Fixtures, such as gear, single trees, double, &c., &c.
By *Hoes*—Modifications, adaptations.
By *Spades*—Trenching, &c.
Pasturage—Principles of selection with regard to the land.
Principles of selection with regard to the stock.
Effects of tramping and grazing upon grasses, wheat, rye, and upon the Soil.
Meadows.
Permanent and Temporary.
Preparation of land—Times of Seeding, &c.
Treatment from year to year.
Manures—Different kinds.
Animal, excrements, bones, hair, &c.
Mineral, lime, &c.
Composted.
Shading.
Various methods and times of application.
At and after seed time.
On Grasses, &c.
Theory of action.
Drainage. Origin, varieties, principles and practice.
Irrigation. Theory and practice.
Fences.—Different kinds.—Stone.—Wire.
Timber—Post and rail.
Stake, rail and cap.
Worm Rail.
Post and plank.
Live and Wattled fences.
Sod fences, Ditch and timber combined.
Roads.—Principles of Location, Repair, &c.
Value of good Roads, &c.
Bridges.
Houses of the Farm.—Overseers' or Stewards' Houses—position, &c.
Stables for Horses—Position, arrangement, &c,
Stables for Cattle, &c., &c.
Barns—Grain, Hay, Tobacco, Cotton, Sugar, &c.
Negro Cabins, Work Shops, Shelters, &c.
Machines, Mills, Presses.—Description of principal varieties.
General principles or Theory of Construction, &c.
Comparative Value, &c., &c.
Farm Tools and Implements—not embraced in preceding: Carts, Wagons, &c.
Seeding and Planting, generally.
Cultivation.
Harvesting.—General principles of—
[The particulars under the several varieties of crops.]
2. WATER.—Its uses, distribution, &c., with reference to Agriculture,
Domestic purposes.
Milling and other motive power.
3. MINERALS.—Classification and description of as they concern
Manures, artificial or natural,
Building purposes.
Fuel.
Other agricultural uses.
4. FORESTS.
Relations to soil, in different Geological Formations.
Theories of rotation in Growths.
Preserving. Period of Reproduction.
How to estimate annual increase of value, &c.

6. LABOUR.

Definition.—'Source of exchangeable value,' &c.
Several departments of Labour.
Agricultural—Manual. 1. Slave. 2. Free.
By machinery—varieties.
Brute "
Manufacturing—Manual. 1. Slave. 2. Free.
By machinery—various forms and motive powers.
Commercial.
Intellectual.
Means of facilitating Labour.
By division of—
By exchanging products, &c.
Wages of Labour.—Principles of in reference to Agriculture.
Slave Labour.—1. Its *value* in given climates and staple crops, compared with *Free labour.*
2. *Its absolute profits* as a part of 'Fixed Capital.'
a. in respect of agricultural productions.
b. " natural increase.
3. *Its proper management.*
a. Discipline, training, instruction of slaves in religion, in Agricultural and mechanic arts.
b. Judicious application of Labour.
c. Hiring in and hiring out.

d. Negro cabins, Feeding negroes, clothing &c., as they concern Economy, Comfort, Health, &c.

Superintendence.

1. By the Proprietor.
2. Overseers or Stewards.
   a. Their qualfications.
   b. Their rights, duties &c.
   c. Wages, how to be proportioned.

c. LIVE-STOCK.

Horses.—Nat. History, Breeds &c., cross-breeding, raising, breaking, feeding, using, profits of raising &c.

Principles in *choice* for various uses.

Mules.—Nat. History, &c.

Horned Cattle.—Nat. History, &c., breeds &c. [as in 'Horses.']

Hogs.—Nat. History &c.

Sheep.—Nat. History, &c., Pastoral History—Breeds, adaptations, comparative value, &c.

Pastures for &c., &c.

d. CAPITAL.

Definition—Fixed
Circulating—Relations between *these* and

Profits in Farming—Relations to each other &c.

Value in use of

Capital invested in educating the Intellect of the young, as a material part of sound Agricultural Economy.

e. VALUABLE PROCEEDS of *Land, Labour, Live-stock, circulating capital.*

Best principles or *Rules* for estimating *Profits of investments* in land, labour, livestock and circulating capital.

Staple Crops.

Wheat, Corn, Tobacco, Cotton, Sugar, Rice, Hemp, &c.

As an example of the analysis and arrangement supposed to be requisite in the study of *Staple crops* let us take *Wheat.*

WHEAT. *History.*—Botanical, Commercial.

Agricultural—

Countries which, in ancient times grew wheat: Changes that have occurred and the reasons.

Character and climate and soil suited to growth of.

Place in Farm Rotation.

Preparation for Seeding.

Selection of Seed:—Seeding
Times of:
Quantity of seed, vices, remedies.
Distribution of Seed.
Methods of putting in.

Manures applicable to.

Times and methods of applying.
Quantity—principles guiding.

Dangers to which the crop is liable,
From seasons, storms, &c.
Insects and diseases.
Fungi and other pests.
Means of averting them.

Harvest. State of grain suitable for—
Milk,
Dough.
Hard.

Methods of reaping.—By hand.
With machines called 'Reapers' &c.

Methods of securing in the field.—'Dozens' with and without binding.
Hand-stacks, &c.

Stacking and Housing—which eligible according to amount of labour at command.

Threshing, time of.—Machines for—Comparative value.

Preservation after Threshing.

Considerations determining delivery and *Sale.*

Preservation of seed wheat.
" Straw and Chaff—their uses on Farm:
For food; for manure in various forms:
Rotted, unrotted, applied on surface, ploughed in, &c.
Proportion of quantity and value which straw and chaff bear to the Grain.

Corn. [This and the succeeding subjects admit of a similar developement.]

Tobacco—Sugar—Rice.

Cotton—Hemp, &c.

INFERIOR CROPS.—*Flax, Barley, Oats, Buckwheat, Root crops.*

Hay.

Varieties—Stages of maturity best suited for mowing in each.
Comparative value of these varieties.
Best methods of curing, preserving, stacking, housing, feeding, &c., &c.

BEEF, MUTTON, PORK.

Principles which guide in selection of

animals for. *Fatting*, grazing, feeding, &c.
Food of different kinds—nutritive properties.
Forms best fitted to nourish.
Estimation of live and dead weights, &c.
Wools.—Varieties and value—Principles connected with growing of: Quality, pastures adapted to, &c.

Milk, Butter, Cheese, Poultry, Bees, Silk-Worms.
D. *Domestic Economy*—General Theory, &c., &c.
A. *Rural Architecture.*—Designing.
Contracts for building.
Comparative value of Timber.
Brick.
Stone for building.
Reasons for electing to build with one rather than another, having reference to Economy.
Durability.
Comfort.
Dryness.
Rough casting on Brick or Stone.
Mansion.
Design—Interior, exterior.
Warming—Furnaces, &c.
Chimneys—Fireplaces—Theory and practical construction of.
Position, Distance and arrangement of *Mansion* with respect to other buildings.
a. of the Curtilage.
b. of the Farm yard, Horse Stables, Cattle Stables, &c.
c. Dairy. Ice House, &c.
Curtilage—Definition — Buildings proper to; Enclosures for—
Dimensions in economical and ornamental aspects.
Kitchen—Location, construction, &c.
Apparatus—open fire,
Range, Stove, Boilers, &c.
Servant's Apartments, Laundry, &c.
Smoke House. Construction—requisites—
Rat proof of Wood on Posts.
Cement floors &c.
Wood House—Ice House.
Construction—*Pits in ground.*
Walls of timber, Stone,
Brick, lined with Charcoal &c.
Pens above ground.
Theory of Ice Houses.
Plans for supplies of Water—Pumps, Rams, Syphons &c.
Privies. Importance to Health &c.
b. *House Service.—Attendants*—Slave.
Free.
Discipline, instruction &c.
Furniture—for
Dining and Sitting Parlour.
Bed Chambers.
Purchase and Preservation of, &c.
c. *Domestic manufactures.*
1. *Curing Meats*, Bacon, beef, &c.
Preserving Fruits, Vegetables, &c.
2. Cotton, Flax, Wool, Hemp &c.:
Uses of Slave labour for:
Economy of making compared with buying, &c., &c.,
d. *Horticulture.*
Landscape gardening.
Gardens for Vegetables, Fruits, Flowers.
e. *Domestic animals.*
1. *Fowls.* Nat. History, Breeding &c.
" Uses, Profits, expense.
2. *Dogs.* Nat. History, Breeds of—
" Uses. Economy of—
" Relations to Sheep husbandry.
E. *General and particular application of the Kindred Sciences.*
Review of the methods of analysing Soils, &c.
Relative value of different soils for different crops &c.
General Theories of action of manures.
Study of Levelling, engineering, surveying, as directly applied to farming purposes.
Measurement of surfaces.
Land-measures in ancient and modern times.
Land measures in U. S. and other countries comp'd.
Making Platts, getting areas, dividing landed properties, &c.
Measurement of Solids—Hewn and Rough stones.
Loose and broken stones, sand.
Earths excavated and filled:
Stacks, heaps of manure.
Trees standing and felled, Timber, walls, wagons, granaries &c.
Discussion of materials in Masonry, Brick, Stone, Cement, &c.
Walls for foundation, arches, &c.
Relative and absolute strengths of different metals.

Woods, Cordage, &c., under different kinds of '*strain*,' in different forms &c.

Relative and absolute durability.

Principles and modes of preservation.

Carpenters and other mechanic work estimated.

Construction of Floors, Scaffoldings, Roofs, &c.

Blacksmith's Work—manufacture of Leather and Cordage: cost and modes of estimating value.

Agricultural Technology.

Manufacture of Lime, Cements, Bricks.

Plastering, charcoal, starch, vegetable oils.

Vinegar, Soaps, &c., &c.

Study of other principles of Mechanical Philosophy—the mechanic powers,

Hydrostatics, Hydraulics, Pneumatics in their direct application to Machinery.
Water Powers.
Water Pipes &c.

Study of Light, Heat, Electricity, Magnetism as they are supposed to affect the interests of Agriculture, vegetable growths &c.

The study of '*Observation of Phenomena.*' Just views in relation to.

1. Connected with the *weather*. Its effects on operations and field products, live stock &c.
   Heat and *cold*, Rain and drought, &c. Probabilities of rain, wind, Frost &c. according to signs in the air and those afforded by Thermometer and Barometer.
   Study of localities with reference to such events.
2. Times of planting, sowing, reaping, killing and curing meats, cutting timber &c. Destroying vermin, attacking field pests, shrubs, &c.
   How long certain seeds require to germinate, vegetate, come to ear, to harvest or gathering, &c.
3. Estimate crops before reaping: Cattle wts. while growing: Handling for that purpose: measurements for do: Same for horses, sheep, hogs.
4. *Farm Journals* &c. Register of each field, quantity of Land, labour, manure, seed: circumstances attending operations, whether quickly and well done, or interrupted and by what &c., &c.

Form of Journal.—Best models.

System of Farm accounts.—Plan of farms. Cost of—Do. of stock &c., &c.

'*Account current*' or *summary for year, &c.*

Such will be the general outline, with the *details belonging to some of the heads*, as adverted to in the earlier part of this paper.

The Veterinary Art in a regularly organized school seem to belong to the department in which were studied comparative Anatomy and Physiology, If it have to be severed from that connexion in the exigencies of this experiment, the professor of agriculture will be, perhaps, best suited to its charge.

Experimental and Model Farms are so uniformly associated with agricultural schools that our scheme cannot be regarded as complete until there is established near the University at least, *a Farm which may combine the properties of both.*

All the analogies derived from medical and law schools, naval and military schools, are in favor of *practical demonstration*, but it is by no means true that the want of these will render an Agricultural School impotent for good. It is probable that, by means of *Models, Drawings, and Specimens*, combined with a judicious exposition of elementary principles, particular and general laws, the school in contemplation may attain to eminent usefulness.

In that which we have denominated the "*Supplementary department*," it will not be difficult to designate the subjects which ought to be studied as subsidiary to the first division. By common consent, it will embrace certain elements of

1. Natural Philosophy, including Meteorology, Physical Geography, Mineralogy, Geology.
2. Chemistry, Inorganic, Organic, Agricultural.
3. Mathematics, including the elements of Surveying, Levelling, Engineering, &c.
4. Botany, including Vegetable Physiology.
5. Comparative Anatomy and Physiology,

including Zoology, Entomology and Veterinary art.
6. Political Economy.
7. Law, International, Constitutional, Municipal.

As respects the extent of the knowledge to be communicated in these supplementary lectures, scarcely more can be expected than a limited acquaintance with their subjects. The instruction ought to be sufficiently enlarged to *impart an available knowledge of the elementary facts and laws in each*, so that, in using the nomenclature symbols or truths belonging to them, the Professor of Agriculture may be understood.

Accordingly, there might be taught of

NATURAL PHILOSOPHY.

1. The general properties of matter.
2. The mechanics of Solids.
3. The mechanics of Liquids.
4. The mechanics of Airs.
5. Imponderable agents, Heat, &c.
6. Astronomy, or mechanics of the Heavens.

OF CHEMISTRY.

1. General Theory of Atoms.
2. Illustration of chemical composition and decomposition.
3. Description of chief inorganic elements, &c.
4. Organic Chemistry, general principles and some particulars.
5. Some illustrations of Chemistry as applied to Agriculture.
6. General principles of Chemistry, Analysis, with particular illustrations bearing upon Agriculture, Soils, &c.

OF BOTANY.

A similar outline of general principles; explanations of the several botanical 'systems,' so that the student may distinguish ordinary botanical specimens, comprehend written descriptions, &c.

OF MATHEMATICS.

Can be acquired only a very slender knowledge, in these lectures; not more than the special demonstrations in Geomeary and Trigonometry usually made to precede a merely practical course of surveying. The use of "Logarithm" Tables, of surveying instruments, taking field notes, calculating contents, by several methods, as of Triangulation, latitude and departure, &c., may be added.

OF THE OTHER BRANCHES.

The student will be obliged to rest satisfied with a like skeleton view, until the young men of the country begin so to appreciate *scientific agricultural education*, that they will prepare themselves for it by special previous study of the allied sciences.

In order to have a yet more distinct view of what the student of Agriculture should be taught preparatory to the *special* course, let us resolve into details, one of the leading subjects, for example:

NATURAL PHILOSOPHY.

1. *General properties of matter*—Extension, figure, impenetrability, divisibility, inertia, attraction, (cohesion and gravity,) porosity, compressibility, elasticity.

2. *Mechanics of Solids*—Statics, Dynamics, Equilibrium, motion. Relation of force to motion—1st. Movers; 2d. Movers, or machines, converting one motion into another, &c. Composition and resolution of forces: opposite, in same and in different directions. Resultants—Composition and resolution of motion. Direction and velocity of motion. Velocity virtual, uniform—motion retarded, accelerated, resultants of motion, momentum—of solids, liquids, airs. Formulæ for *elements* of *momentum* = *matter* × *Velocity*, &c.

Action and Reaction, reflected motion. Angle of incidence and reflexion.

Compound motion, curvilinear motion, centre of motion, centre of magnitude—Centripetal force, centrifugal do.—Centre of gravity, terrestrial gravity—Explanation and illustration, with *formulæ* expressing heights, velocities, and times—Laws of: uniformly accelerated motion.

Practical Mechanics.—Calculation, production and direction of motion. Power of machines. What is a machine? proper functions; does not increase mechanical energy of power, only changes direction and velocity.

Formulæ of weight and power, or of momenta of weight and power.

Condition of equilibrium, moment. of P. = moment. of W.

Condition of accelerated motion towards P. when moment. of P. > moment. of W.

Condition accelerated motion towards W, when moment. of P. < moment. of W.

Power gained at expense of time, &c. &c.

Classification of Machines. Simple, complex.

Simple machines = mechanical powers.
1. Lever. 2. Wheel and axle. 3. Pulley. 4. Inclined plane. 5. Wedge. 6. Screw.

May be reduced to three denominations:
I. A *solid body turning on an axis.*
II. A *Flexible cord.*
III. A *Hard and smooth inclined surface.*

Laws and formulæ of relation between power and weight.

Some *applications* and *modifications* of *each simple machine.*

Formulæ of relation between power and weight in some of these modifications.

Complex machines, examples and principles.

Methods of regulating machinery.—Contrivances for; causes of irregular motion, &c.

Pendulum, Theory of: *Laws*, as respecting Times of vibration, length, weight; Force of gravity, &c., Relations to, &c. Centres of oscillation and suspension. Compensation Pendulum, &c. &c.

Resisting or passive forces. 1. *Friction*, of sliding, of rolling: Laws of both.—Angle of repose. Best line of draught: application of these principles to familiar machines, carriages, &c.

2. *Rigidity of cordage.*—Formulæ of Peschel R = d'w 32d lbs. Relations between *resistance* (R) and certain forms of *front; degrees of speed; media*, &c.

Strength of materials.—Tested by forces applied in various directions—metals, woods, ropes, &c.

Practical deductions in relation to each, under the several tests, *direct pull, pressure* and *thrust, torsion, transverse strain*, &c. &c.

Effect of Form upon strength of *metal, wood, cordage;* strength of certain vegetable and animal substances under particular form and combinations.

Particular investigations of strength of materials to resist "transverse strain." *Prismatic beams: cylindrical, rectangular, square.*

Formulæ under various modes of applying the breaking force to any *prismatic* beam.

Effect of transverse section on strength of beams.

Relation of centre of gravity of *sectional areas*, to strength of beam.
1. When one end is supported.
2. When both ends are supported, &c.

Transverse strength of Hollow and Solid Cylinders.

Strength of do—To resist *crushing strain.*

Tables of pulling, crushing, transverse resistances, for wood, metals, &c.

Mechanics of liquids.—Special properties of liquids: wanting cohesion and repulsion—more easily among themselves.

1. HYDROSTATICS.

Fundamental mechanical property of liquids, equal pressure in all directions. Some consequences deducible.

Hydrostatic paradox:—Bellows;—Press, &c. Pressure on bottom and sides of vessels greater than weight of liquid. Pressure on dams and embankments. Point of average depth; application of principles.

Actual pressure of water per square inch and foot at given depths. Corresponding pressure of other liquids.

Specific gravity: Areometer, Hydrometer, &c. Fountains, springs, points of refluence; *Levelling*, &c.

2. HYDRAULICS.

Motion of liquids through channels, pipes, orifices; machines for raising water, (Belier's, &c.) Pumps, &c. &c. Finding contents of *pipes* of *given diameter* for any required *height* or *length.*

Force to be derived from liquids in motion.

Water wheels of various species—Methods of determining their *power.* Barker's mill, &c.

Mechanics of Airs.—Atmospheric air and other elastic fluids.

Solids and fluids in respect of elasticity, compressibility, &c.
Differences, laws and reasons.
Barometers, Air Pumps, Force Pumps, Syphons.

Acoustics, leading theories and facts.

Imponderables.

1. *Heat.* Theory of: Combustion.—Conducting powers of bodies: Cold: Radiation: Reflection: Dew, Vapours, Steam: *Latent Heat: Specific Heat.* Definition and illustrations.—Pyrometer, Thermometer, Hygrometer.

Dioptrics. 2. *Light.* General properties and several *Theories* of.—Refraction, laws of: by prisms and lenses: Images formed by lenses: Vision of images: apparent magnitude, &c. Principles and description of Telescope and Microscope.

Catoptrics. *Reflexion of Light.*—Plane, convex and concave mirrors: Reflecting telescopes, microscopes, &c.

Chromatics. *Decomposition of Light.*—Prism: Spectrum, &c. Different powers and properties of several rays: *Illuminating* power, *Chemical* power, *Heating* and *magnetising* power, how distributed: Relations to germination and vegetation. Explain Rainbow, Aurora borealis, Mirage, &c. &c.

3. *Electricity.*—General facts and Theories. The several kinds of electricity. Excitation, attraction, repulsion, distribution, induction, transference, electrics, non-electrics, conductors, non-conductors.

Electric machine: Jars; Batteries explained.

Galvanic Electricity: Origin: Theory, leading facts—and apparatus connected with.

4. *Magnetism.* Facts and Theories.

Polarity. Attraction of Iron, Steel.

Magnetic Iron, &c. Laws of magnetic forces.

Magnetism of the Earth. Mariner's Compass.

Land compass, Variation compass.

Azimuth compass.

Electro-Magnetism.—Definition and Theory.

Mechanics of the Heavens.

Solar System.—Facts and theories. Variation of seasons. Laws and explanations. Solar sidereal and mean time. Moons, latitude, longitude, transits, eclipses, tides, comets, &c., &c.

To these topics it is proposed that the Professor of Natural Philosophy shall add, *an outline of the general principles* of

1. Meteorology. 2. Physical Geography.
3. Mineralogy. 4. Geology.

giving to some of them, as *Geology*, a larger share of attention, proportioned to their importance in relation to Agriculture.

Inspecting this '*summary*,' it seems probable that an adequate exposition of the *leading facts* and *truths* may be made in about 18 lectures for *Natural Philosophy* proper, and 8 or 10 for the succeeding subjects, Geology, Meteorology, &c.

It becomes a question of interest, how the whole course of '*Supplementary lectures*' may be introduced so as to afford to the *special agricultural* course, the most timely and effective aid. To this end, it has already been indicated that they should occupy the earlier months of the session.

Divide the whole series into six '*parts*,' and suppose 18 lectures assigned to each, as sufficient for the elucidation of the subjects thereof, we have 108 '*supplementary*' *lectures.* Assign one for each day of the week, and they will be accomplished in about 4½ months, or half the session.

If any 'parts' remain incomplete at the end of this time, they may readily be continued; and, if any are thus to be deferred until the latter half of the session those embracing *Political Economy and Law* will, at once, appear suited to this postponement.

And, inasmuch as *any estimate of the amount of knowledge to be conveyed in the several compartments will be wholly conjectural until it is put to actual experiment*, we shall not err in providing that the class *may* be occupied, to greater or less extent, throughout the session, with these 'accessory branches.''

Scientific men will naturally revolt at the idea of abridging and symplifying philosophy and Law, so as to be learned in a given number of lectures. Let us give them due latitude, but it is clear that the instruction in these 'accessory branches,' afforded to *the class of the 'School of Agriculture,'* is to be *selected* and *elementary.* The usual course in the several schools will not be adapted to the wants of this class, nor to its attainments. It will be unsuited in respect both of time and of character.

The division into 'parts may be as follows:—with the explanation, that *this arrangement does not assign the subjects under the respective heads, to the same Professor;* but is merely intended to indicate the *sequence* in which these subjects may be studied in the period of four or five months:

1. On natural Philosophy there may be about 18 lectures.
2. " Chemistry Inorganic, organic, agricultural—18.
3. " Mathematics, Mineralogy, Geology, &c. 18.
4. " Botany, Vegetable physiology, comparative Anatomy and Physiology, 18.
5. " Zöology, Veterinary art, Political Economy. 18.
6. " Law International, Constitutional, Municipal. 18.

It is supposed that *Mathematics*, as it can embrace nothing more than the elements of *surveying*, *levelling*, *engineering*, may be taught by the *Professor of Mathematics*, in *less* than 18 lectures: and that the remainder of the time allotted to this '*part*' may be appropriated to lectures (by the Professor of *Nat. Philosophy*) on *Mineralogy*, *Geology*, *Meteorology*, *Physical Geography*.

So, also, Botany and vegetable Physiology being likely not to require 18 lectures will leave a remainder of the time allotted to its '*part*,' for lectures on the " Comparative Anatomy and Physiology."

So, '*Veterinary Art*,' Polit. Economy may follow in the division of time allotted to '*Zöology &c.*' *&c.*, *&c.*

It thus appears that these professors will, some of them, deliver but *one* 'supplementary' lecture a week; others will deliver *two*:

That, as regards the *class* of 'Theory and practice of Agriculture,' it will, according to supposition, attend *one supplementary lecture, and one Agricultural lecture* (either Junior or Senior) every day until the former course is completed, and afterwards, but one, (*the agricultural*), *unless* there remain some unfinished '*parts*.'

Another and perhaps not the least important consideration in the inauguration of this enterprise is the adjustment of *fees*. Not only must the Tuition be liberal and practical, but it must be suited, in respect of *cost*, to the exigencies of the class of persons who will be, in large degree, expected to seek it.

Following the analogy which has been several times referred to, of the Schools of Law and Medicine, it will not be unsafe or unequal, to make the fees of those schools our criterion here.

The dignity of the 'profession' of agriculture, its intrinsic importance and *the labour to be expended in the course of Instruction*, strongly inculcate this rule of adjustment.

FARM FOR DEMONSTRATION OR INSTRUCTION.

It has been conceded in this paper, that by means of '*Models*,' '*Plates*,' and '*Specimens*,' the school of Agriculture may attain to eminent usefulness. Yet it is probable that its full capacity for good, can be developed only by 'Demonstrations' on a 'Farm.'

The objects of such an Appendage to a school of 'Theory and Practice,' seem to be, *to illustrate in a given climate and soil, the best methods of Husbandry*;—to show the management of Farm in the details, and in the whole: to teach, by the pupil's '*taking hold*' with his own hands, the arts of draining, ploughing, sowing, harrowing, cultivating, reaping, stacking, threshing and preparing the products, for market: to explain the management and treatment of all live-stock on the place, whether designed for food or labour or other products: to teach the duties of shepherds and graziers: the whole management of the stall and dairy: the duties of an 'overseer' or 'steward of the Farm;' the practical keeping of *Farm accounts*, and *daily Records*.

This excludes what is technically termed an '*Experimental Farm*,' as it is defined by one of the most approved writers on Practical Agriculture:—a farm, " the sole object of which is, to become acquainted with the best properties of plants and animals by *experiment*, and to ascertain whether or not those objects are worthy to be introduced into an ordinary farm:—on which it would, therefore, be obviously needless to follow the ordinary modes of cultivating the ordinary plants and of rearing the ordinary animals:—on which, on the contrary, new plants," (and we must add) various, and even inferior breeds of animals, " extraordinary modes of cultivating and rearing, are to be tried, with the usual risk of failure."*

A farm and a system like this, confounds in its design, the original investigator of truth, with the student of truths or laws already ascertained. It is a laboratory

* " *Stephen's Farmer's Guide*," p. 124.

where materials and methods are brought into 'relation' with each other, with risks of mistake, failure, explosion and confusion. It is a theatre for the ready made philosopher, but not for the uninitiated learner.

We cannot doubt, however, that a certain kind of 'experimenting' may be highly useful, yea, is necessary—that which exhibits to the pupil's eye various methods of planting and cultivating numerous varieties of vegetable growth;—various methods of breeding, rearing, feeding, fatting several varieties of each kind of useful stock; multiplied operations, machines, manures and soils; but with the special rule or condition, that the component parts of the whole system shall be approved and not vicious: and that, with each fact submitted to observation before the learner, there shall be given such instruction as will enable him to comprehend clearly, the reasons or principles.

It would cost too much of the material of 'Agricultural Economy'—of Land, Labour, Live-stock, circulating capital, to institute, for the instruction of a class, a series of experiments which are, by supposition, to result in failures of crop, injury to the soil, and the corrupting of breeds.

We may exhibit for instruction, examples of defective design, bad execution, and untoward results, when they occur spontaneously or accidentally, but it will scarcely be wise to create disorders that we may heal them, nor subject vegetable and animal life to continual torture at the probable expense of capital and sound knswledge.

Our plan will likewise exclude the so-called 'Model Farm,' in proposing that the work shall be executed by regular labourers, instead of the Pupils. Except this difference and certain defects which may be expected to arise from ordinary causes of failure, want of skill in the superintending head, or casualities of weather or pests, the 'Farm' here contemplated will be 'Model;' but its whole design is best conveyed in the title,

'Farm for Demonstration or Instruction.'

At present, we may be content with that measure of actual exercise on the "Farm," which corresponds with evolution in the practice of a Gymnasium, or of a military Academy.

Fortunately in one aspect, a majority of those who follow the instructions of the school, will probably be prospective landowners. Their province will be to direct, not to execute, and while they can never handle a hoe, a plough, or an axe, like a man who has used them habitually, yet they may learn pretty well, the right mode, by having seen them well used.

There is a class of young men, who, it is hoped, would not fail to avail themselves of this propitious opportunity to be educated for the business of Overseers or Farm Stewards. Their independence and good sense would be eminently illustrated if they would perform labor on the farm, and receive such credits for it in allowance, or in money, as would partly defray the expenses of education.

In further detail of this organization we may provide that, having procured a body of land of suitable quality, quantity and location, the professor of agriculture shall, as principal or quasi-proprietor, have control of the whole "Farm," subject only to the constituting authorities: determining the labour to be applied, systems of improvement, methods of operation, selecting machinery, implements, stock, seeds, fruits; regulating processes of breeding, cross-breeding, rearing, feeding, fattening, directing manufactures which are practicable, in wood, iron, flax, cotton: of butter, cheese, &c.

To give fuller efficiency to this co-ordinate department, it will be necessary to have an agent whose function shall be that of an "attendant," or "practical assistant," under the principal, to superintend, at all times, the business of the "Farm," the work, the stock, &c.; to prepare, according to a memorandum furnished him by the professor, materials and subjects for instruction, and to assist in manipulations before the class.

Next, dividing the class into sections of 10 or 12. composed partly of Juniors and partly of Seniors, the professor will, upon the ground, carry the sections severally and successively, through the "Demonstrations" and "Exercises" adverted to. The days for these duties will be appointed by the Principal, having due reference to the *seasons* when particular processes are going on.

Classes of two, (one a senior, the other a junior), may be detailed in succession,

to inspect, during a period of two weeks, each, the whole management of the "Farm;" to keep, according to a prescribed method, a daily account of receipts and expenditures: a daily tabulated record of farm operations, facts, and results; of Thermometric, Barometric and other phenomena of the Air. Of this record, the section may preface, at the end of its term, a Resumé, reciting in proper detail, and with judicious generalization, the leading facts. They may spread this, (after being reviewed and approved as a school exercise by the professor) upon the pages of a Book adapted to preserve it as a permanent historical record.

Whatever of enthusiasm or of hope may have been warmed into existence by the contemplation of these details, we are sensibly chilled by the consciousness that their consummation is remote. Means are wanting, and we are to throw ourselves for their supply upon the Legislature and upon the voluntary contributions of which we have the conspicuous example already referred to.

PEACHES FROM SEED—EXPERIMENTS WITH GUANO ON CORN AND WHEAT.

The following paper was sent to us more than a year ago, but misplaced, and it was feared, lost. But the facts it gives are as valuable now as when first sent to us, and we accordingly publish them. Ed. So. Pl.

Elizabeth City County, Va.

Mr. Editor:

I am a subscriber to, and a general reader of your very valuable publication—the "Southern Planter,"—a work which it affords me much pleasure to peruse at my leisure moments; indeed I might say that my taste for agricultural reading is so strong that I not unfrequently make leisure moments to gratify that propensity. I have read every number through since I subscribed to it, except one, which, from some cause, I never received. I have often expected to find something from the able and experienced farmers of my native county, giving the public the benefit of some of their practical experience, instead of so much theory, with very little practice; but having never had the pleasure of doing so, I concluded I would give the results of several experiments with guano on wheat and corn, and answer the querist in the number for June last, who wishes to know whether or not the same kind of peaches can be had by planting the seed, to which I will offer the following, with all due deference to those who may differ with me on that subject.

In the first place I would say, that I have seen, to my way of thinking, as fine peaches raised from the seed as I ever did from grafting or budding, and were I to say that the largest fruit of the kind I ever saw, was raised from the seed, (and if not as finely flavored as that from grafting, I have not epicurean taste sufficient to detect the difference,) I should speak the truth. I have several times seen peaches raised in this county from the seed, sell in the Norfolk market for seventy-five cents per dozen. I know of two gentlemen in this place who have been raising peaches from the time I could first recollect, and I am very sure they never had a grafted tree in their orchards; if they have, it is a very recent thing. A question might here be asked, Why very recently, if there is no difference, as that would indicate a difference? Most assuredly it does; but I would offer this as the reason, to wit: There have been several nursery agents in the county during the past few years, who made large sales to its citizens of various kinds of fruit trees, and perhaps among them peach trees. Neighbor A, seeing friend B, C and D trying trees out of northern nurseries, would be induced to try them too; not with an idea of getting an improvement on the same kind of fruit by grafting, but they might, by that means, get a variety of very good fruit.

I would here give my idea of the causes of so many failures from planting the seed, which is this: Many a farmer, who has no orchard on his plantation, on seeing fine looking fruit in market, is induced to purchase some of a very delicate flavor and large specimens, for the purpose of procuring the seed, without knowing whether or not it grew on trees raised from the seed. I give it as my opinion, that if the seed planted were from trees grafted, that you will more than likely obtain fruit similar to that raised on the stock or tree to which the graft was attached, while I speak from personal observation, when I say I have never known it to fail to produce the same kind of fruit when raised from trees not grafted.

I will also state what I have seen as regards apricots. I knew a gentleman to plant some seed, from which he raised one tree which produced the largest fruit of the kind I ever saw in my life, but unfortunately, from some cause it became rotten at the heart soon after it commenced bearing, and either died or was blown down.

Wheat.—I will now give the results of an experiment with guano upon wheat. In the fall of 1853, I bought 30 bushels of Pennsylvania white wheat, designing to sow the same on a field of 28⅝ acres, but had on hand, after sowing the said field, three pecks, which had been increased in bulk by soaking it in brine. I had read and heard so much about the effects of guano on poor sandy soil, that, having some acres quite worthy of those adjectives to express its quality, I concluded to experiment to some extent with the three pecks, I therefore selected, to the best of my judgment, as poor, if not the poorest spot in my field, and had the stalks (if I may so call them) taken off what I judged would make half an acre. I then had the wheat sown first, and then one hundred and seventy pounds of guano, both sown broadcast, and on the ground just as left by ploughing the corn the last time—the two ploughed in together with a seed plough, and it had nothing more done to it. I then measured the ground accurately, and there was only one-third of an acre, on which I had sown two and a quarter bushels of wheat, and five hundred and ten pounds of Peru-

vian guano to the acre. It might be proper to state, that the land was so poor that it would not produce what is termed by the farmers in this county, poverty grass, and I am confident I speak within bounds when I say I did not get a bushel and a half of nubbins off that piece of land, for there was not one ear among it. But the effect of the guano was surprising. for the wheat grew as high as a man's chin, taller than many of the stalks of corn had grown. I had intended to thresh out separately and accurately measure the quantity raised, but when I threshed my wheat I happened to be absent at the time that that was hauled to the yard, and consequently it was all mixed together; but knowing the number of shocks I had in all, and the number of that one-third of an acre, I made an average of them, which was against the experiment, as the shocks upon that were rather larger than an average of the whole number, but by that calculation, I raised on the same 6⅔ bushels of good wheat.

Corn.—My next experiment was on corn. I had some seven or eight acres of very poor land, which I wished to cultivate in corn, more to destroy the seed of a very unsightly weed, which had taken possession of it, and hearing guano so highly recommended for its beneficial effects upon corn, I concluded to give it a trial; but the difficulty which presented itself was to know in what manner to apply it, so as to reap the greatest reward from it. I could hear one farmer say, "sow it down the furrow as you plant the corn;" another, to "sow it broad-cast when ploughing the corn the last time;" (that mode I knew would not do for as poor land as I was using it upon,) and another would say, "drop it between the hills." Not knowing which was the best way, I concluded to give it a trial in several ways. I applied a considerable quantity around the corn when nearly knee high by putting about ¾ oz. to each, just a head of the plough, but this did not more than pay expenses, if that, owing, I think to the exceedingly dry summer we had. The next was applied after siding the corn, by sowing it down each furrow, and throwing the earth immediately upon it, aiming to put the same quantity down the two furrows, that I should have put if planting the corn with it in the same furrow. Then I planted a few hills, and put to each one about ¾ of an oz., (or 180 lbs. to an acre of corn 3 by 4 feet,) and in order to ascertain whether it prevented the corn from vegetating, I threw some dirt on some of the hills, and planted the others on the guano, those I covered came up very well, while that planted on the guano was badly missing. I also planted some of the same kind of land without any guano. This, I am certain, did not make 3 bushels of shelled corn to the acre, but think that quantity in the ears nearer the mark; that manured in the hill brought very little, that which was covered with the dirt first, or before planting the corn, never produced a nubbin, while that which had the guano drilled down the furrow with the corn produced a fair crop, but not as good as that applied in the two furrows when siding the corn, by 10 per cent., though the land used in that way, or the one furrow application, had the advantage over the two furrow application in being very highly manured the fall preceding, and sown down in turnips, which came up badly. I mention this fact, that it may not be supposed that the turnips took up all the benefit to be derived from the application of the manure, which was fresh stable manure that had never been exposed to the action of the weather; a sufficient quantity, I think, was put upon the land to produce six barrels of corn, with ordinary seasons, to the acre.

That portion of the experiment with the guano applied in the two furrows will gather from three and a half to four barrels of good corn to the acre, and if it had stood well I think it would make from four to five barrels; but it is very badly missing, owing to its having been planted so late that I never had it replanted, (planted after the 16th of June, and in land so poor that I considered it useless to replant.) I would here state that it was dropped by two hands, the one dropping it about two feet or two and a half, and the other about three and a half feet; but there was no difference in the thickly planted rows more than a good ear for every extra hill over the thin row. I would further state that the fodder alone on the two furrow application is worth more than everything produced on the same quantity of land with no guano. All these experiments were on corn planted between the 16th and 23rd of June, except that which had the guano round the hills. The crop of corn now upon the land is said by the farmers in the neighborhood, to be the second best crop ever raised upon it since it was cleared up.

Wm. Ivy.

P. S.—Since writing the within, I made known to a friend the idea I entertained in regard to the raising of peaches from the seed, and he told me he had talked to a professional gentleman on the same subject, who said I was mistaken in saying that if the seed from a grafted tree was planted you would more likely obtain fruit similar to that on which the graft had been put, but the contrary, that is the fruit raised would be like that from which the graft was taken. I am of the same opinion still, but open to conviction. If peaches raised from the seed of a grafted tree will produce the same kind of fruit, why graft any, as it would be cheaper to plant the seed? Now peaches are different from any other kind of fruit I konw of, except the apricot I spoke of. I have never seen the experiment tried with any other kind of fruit, and believe any others would degenerate by raising from the seed.

Wm. Ivy.

Cooking Salsify.—Through the winter and spring, Salsify is a favorite dish on our table. We usually prepare it by boiling in milk until the slices are tender, adding pepper and salt, and a good slice of butter. When ready to serve, stir in two or three well beaten eggs, taking care not to let it boil afterwards. This is very nice poured over slices of toast.

Another way I have learned by a few trials which husband pronounces decidedly good. Boil until tender a point or more of Salsify, mash fine, then add pepper, salt, butter, a few spoonfuls of milk or cream, a little flour, and two beaten eggs. Make into small cakes, and dip in flour or egg batter, and fry of a light brown. Perhaps some of your country friends, who, like us, live far from market, will pronounce this a good substitute for fried oysters.—*Am. Agriculturist.*

THE PATENT OFFICE REPORT.

A month or more ago we felt it our duty to take some notice of the *Patent Office Report.* We are now very glad to present a more extended criticism of some of the pretensions of Mr. D. J. Browne, who is at the head of the Agricultural Branch of the office, by Mr. Howard of the Boston Cultivator. That alone is enough to prove the utter unfitness of the incumbent for the post. We are the more pleased to see Mr. Howard come out as he has done, because of the commendation that in some quarters has been bestowed on the Patent Office Report. How strange is it that Farmers and Editors should unite in recommending such trash, and keeping up an abuse which ought long ago to have been corrected.

After having noticed the agricultural part of the Patent Office Report for 1855, sometime since, we laid it aside with the intention of speaking particularly in reference to some portions of it, at a more convenient season.

The Report, proper, opens with a chapter under the following head: "Domestic Animals. Influence of the change of Soil or Climate on Animals, and of the variation of their Food. By D. J. Browne."

In reference to the changes produced by food and climate, the writer quotes from an article under his own name in the Patent Office Report for 1854, as follows:

"If the London-Dray horse be conveyed to Arabia and subjected to the same influences as the native horses of that country are exposed, in a few generations he will present the leading characteristics of the Arabian horse. The head will gradually diminish in size, the limbs will become fine and clear [clean], the massive proportions of the whole body will disappear, and not only will the external form of the native be acquired, but, aside from this, something also of the chivalrous disposition or spirit."

We noticed this remarkable passage in a brief review of the Report for 1854, and inquired whether so wonderful a metamorphosis had ever actually occurred, or whether it was to be received wholly as a hypothesis of Mr. Browne. We have seen no evidence on this point, although the assertion is regarded as of so much importance as to have a place in two official Reports!

But other ideas in the Report of '54 are re-issued in that of '55. In the former, it was said that sheep when transferred from Vermont, or other favorable sections, to the West India, lose their fine delicate fleeces, and "*after a few years are entirely covered with rough coarse hair, resembling that of the goat.*" This idea is somewhat enlarged on in the Report for '55 as follows:

"If sheep are carried from either of the temperate zones to the burning plains of the tropics, after a few years material changes take place in their covering. The wool of the lambs, at first, grows similar to that in the temperate climates, but rather more slowly. When in a fit state for shearing, there is nothing remarkable about its quality, and, when shorn, it grows out again as with us; but, if the proper time for shearing be allowed to pass by, the wool becomes somewhat thicker, falls off in patches, and leaves underneath, a short, close, shining hair, exactly like that of the goat in the same climate, and wherever this hair once appears there is never any return of wool."

These statements doubtless appear strange in themselves; but what can be said in regard to their *consistency*, when it is recollected that they were first used (Report for 1854) to show that varieties of domestic animals, "*are not the results of any transmuting influence of time, variation, or increase of food, or change of climate, ... but were produced at the beginning by a creative power?*"

Any attempt to reconcile these antagonistic positions, or to show that either of them is founded in truth, would of course be useless, and we pass on. In the Patent Office Report for 1851, there is an elaborate article under the following head: "Sheep Breeding. By P. A. Browne, LL. D." The prominent idea of this article is, that there are two (and but two) *species* of sheep—"the hairy sheep and the woolly sheep"—and that these were originally created distinct. Now, we say nothing about "diamond cutting diamond," but is it not at least amusing, to see how readily and completely Mr. D. J. Browne transmutes Dr. P. A. Browne's supposed original and unchangeable *woolly* sheep into a *hairy* sheep?

The article to which we have above referred, in the Patent Office Report fo

1855, treats of some points in the physiology of animals, and follows the idea which some writers have entertained, that *small lungs* are most favorable to the accumulation of fat in animals. It is assumed that animals fatten more rapidly at the end of the feeding season—or in other words, that the fatter they get the faster they gain—and the reason given is, "that the fat, accumulating in the abdomen, presses upon the diaphragm and abdominal muscles, thus preventing the more complete action of the lungs," &c. This proposition and the argument connected with it, reminds one of Franklin's fish and tub of water. The Doctor, it is said, propounded to certain savans the question, how it was that a fish of given size could be put in a tub full of water, without making the water run over? After permitting them to puzzle their brains with conjectures in explanation of the phenomenon, the facetious philosopher told them there was no fact in the question. So in the other case, the assumption in regard to the advantage of small lungs, does not rest on fact. Nothing that amounts to proof is adduced in its favor, and all practical experience is against it. As to the "prevailing opinion among butchers, that the fattest cattle have small lungs," it does not affect the question, because it is known that the lungs become small by the accumulation and pressure of fat attached to the kidneys and abdominal viscera. When the carcass becomes loaded and filled with fat, the amount of food the animal is able to eat and digest is lessened, and the gain in weight is the same ratio diminished, instead of being increased. Every close-observing *feeder* knows this, if the butcher does not.

But here is a paradox:

"It is supposed by some that all animals with large, broad, round chests, fatten best, and that they have small lungs; but this is found not to be the case, for horses have narrow chests and large lungs. South Down sheep have narrower chests than the Leicester breed, yet they have the largest lungs; but the Leicesters are known to fatten sooner."

If it is true that animals with small lungs fatten best, and that broad-chested animals have the smallest lungs, what has the narrowness of chest and the large size of lungs in the horse to do with the point? We have understood Mr. Browne all along to be contending for small lungs for fattening, and he says in the above sentence that the broad-chested Leicester sheep has comparatively small lungs; why, then, is this "found not to be the case," even though horses have such chests and lungs as is stated? As to the Leicester and South Down sheep—we know that the former matures sooner than the latter, and of course fattens earlier. But does this result follow from the smallness of the lungs? Some South Downs are bred nearly on the Leicester model—they have as broad chests as any other sheep in proportion to their size. There is no reason to believe that those of this conformation have smaller lungs than narrow-chested sheep. We speak according to our own personal knowledge, when we say they have not. All correct observation supports the position of Cline, that—"The external indications of the size of the lungs are the form and *size* of the chest;" that "An animal with large lungs, is capable of converting a given quantity of food into more nourishment than one with smaller lungs, and, therefore, has a greater aptitude to fatten."

The chapter we have at present under consideration, contains various cuts and descriptions of the stomachs of cattle. These are the same which have often been given in English works as well as those published in this country, and are, of course, very good, though, they can furnish nothing new to the intelligent portion of American farmers.

The next chapter is headed "Horned Cattle. The Points by which live Cattle may be judged." It is signed "D. J. B.," by which the idea is probably intended to be conveyed that Mr. D. J. Browne is the author. It is, however, almost wholly made up from two essays, viz., one "On the External Conformation of Cattle, Sheep, &c." by Mr. Sparrow, which may be found in the London *Farmer's Magazine*, for August 1839, credited to *The Veterinarian*; and the other "On Fat and Muscle," by W. F. Karkeek, published in the *Journal of Royal Agricultural Society*, 1845.

The ingenuity displayed in the plagiarism, by transposing and *dovetailing* the language of these authors, might be shown by quotations, but the space allowed to

this article prevents. Should it be necessary, we will furnish them hereafter. "D. J. B." makes no reference whatever to the works he has thus purloined. Perhaps he regards the theft as only a lawful mode of *Americanizing* foreign literary productions—a business in which we believe he has had some previous practice.

We have no space for comment on the absurdity of some of the doctrines of this Report, or the dishonesty of obtaining portions of the matter, as above noticed. Neither can we at present proceed further in our review, although we had marked various other passages. In reference to previous Reports from this Department, we have been constrained to ask—How long will the American people consent to the national disgrace inflicted on them by the issuing of "public documents" of this character? We reiterate the question and pause for a reply.—*Rural American.*

ON SOIL ANALYSES.

The expression of strong opinions in favor of the practical utility of soil analyses, by some of those whom we should regard as among our best informed farmers, at the late annual meeting of the Connecticut State Agricultural Society, leads us to reproach ourselves for not having earlier laid before our readers some important facts on this subject; which we will now essay if our readers will first follow us through a few introductory observations.

When the Science of Chemistry first became worthy of the name, then Scientific Agriculture had its incipient existence; hypothesis and theories based upon the much cruder experiments than we now have, in part only true, served a good purpose in developing the science-in-embryo.

The soil was found to contain the constituents of the ashes of the plant, and the ashes of the plants used as food for man or beast, to contain in like manner all the inorganic constituents, or ashes, of the animal body. It was moreover made certain that in soils deprived of any one substance found in the ash of a plant, that plant would refuse to develope itself. Upon this fact there hangs the supposed reason why soil analysis should be beneficial to the practical farmer. "For," argues he, "the chemist has proved that this, that, and the other substance, a dozen of them altogether, are absolutely necessary for the life and healthful development of the crops I wish to grow; he can tell me what my soil contains and whether or no all that is necessary is present." This seems clear reasoning, and so it is. And it answered its end; soils were analyzed and were found to be wanting in some of those very things that were most in requisition for the plant; these substances were found, and known by experiment to be the very ones among inorganic substances most valuable in manures. Phosphoric acid was found to be present in most soils in small quantities, and in poor or worn-out soils it was wholly undiscernable perhaps, and bones applied to these soils to restore the phosphoric acid, proved of great advantage. Here was proof positive of the value of soil analysis to the minds of all.

Science has made advances, and if now we assert that *soil analyses are of no practical value* to the farmer except in isolated cases, (not, however, meaning to imply that chemical examinations of the soil for specific ends may not be useful,) we but give the opinion of every agricultural chemist here or in Europe, whose opinion is worth consideration. Soil analyses may indeed be undertaken in the course of scientific investigations, in fact the minute study of soils involves their careful analysis; but this does not effect the practical view we take.

Consider a few facts. The surface of an acre of arable land within easy reach of the roots of crops and penetrated by them and turned by the plow is the soil; it varies in depth from five inches to a foot, and the cubic foot of different soils varies in weight from 65 to 100 pounds.—The weight of good common soil is usually 80 to 90 pounds to the cubic foot. The least gives the weight of an acre of arable land to the depth of one foot, 3,484,800 pounds; or to the depth of six inches, 1,742,400 pounds. As there are but few soils that one would be likely to have analyzed that are not tilled to a depth of seven or eight inches, we may fairly take the more convenient number 2,000,000 pounds as the weight of the arable soil of an acre. Now, twenty-five bushels of wheat remove about 45 pounds of the constitu-

ents of the soil in the ash; of these 45 pounds, about 48 per cent. is phosphoric acid, this would be 21-6 lbs.; what proportion does this bear to the entire weight of the soil? Less than the one ninety thousandth; or exactly (0,00108.) Can chemical analyses detect this difference? No indeed; we are all well satisfied, if our results on two analyses of the same ash agree to the second place of decimals, in the estimation of those constituents of ashes which are easiest to determine, but with phosphoric acid if the disagreement is less than one tenth per cent. (0. 1,) it is all we can expect.

What does this prove? To our view it proves that the same piece of land can be cropped ten to fifty years with wheat, and so far as phosphoric acid is concerned, chemical analysis cannot tell the difference.

Take another view. A ton (2,000 lbs,) is the 10th of one per cent. of the weight of the soil of an acre, that is, the 1000th part of 2,000,000 pounds. One pound is 7,000 grains; one ton to the acre is the 1000th of a pound to the pound, or 7 grs. In adding the quarter part of a ton (500 pounds) of guano to the acre we add less than 1 grain of guano to the pound, and this grain is less than one fifth ammonia, and about one seventh phosphoric acid.—A soil is unfruitful without the guano,—analyze it. Let now 500 pounds of guano be added; the soil is teeming with fertility,—analyze it again. Will the analysis show any difference? Probably it will, no two analyses are exactly alike; but, will the 5th of a grain of ammonia in the pound taken for analysis be discovered? or the 7th of a grain of phosphoric acid? We answer; No—the quantity is too small to be accurately determined.

When we now take into consideration the expense attending an analysis, which would be at least $50 if it is good for for anything, and the fact that $50 may be spent in a much more effective way upon the land, and the profit sure to follow, the conclusion seems unavoidable, that soil analysis, as a practical guide, is not advisable in any case. If a question arises which the chemist can answer, let him be consulted. For instance, does the farmer inquire if his subsoil contains protoxide salts of iron, which would be injurious if brought to the surface by deep plowing? This question the chemist can answer for $5 probably, and it may be worth much more than that practically; in fact, we have known a damage of at least $30 or $40 per acre from lack of this information.

Some years ago the Royal Prussian Agricultural Society tried the experiment thoroughly. They took various soils to experiment upon and took samples of them for analysis; they then cropped the fields severely, if our memory serves us, several years, and then took other samples for analysis. In many cases, perhaps in all, duplicate samples were taken and sent to different chemists. These samples, together with samples of the carefully weighed crops, were submitted to the most distinguished chemists of Germany, than whom there are none more accurate. The results obtained were just what from the above considerations we should expect. The variations in the analysis of the same samples were shown to be such the thevariation caused by the cropping could not be shown. In one case even, there was given in the analysis of the soil after cropping more of certain ingredients of the ash than was attributed to it before the crops were removed.

A word in regard to the value of chemical investigations to the farmer. The science of Chemistry has made Agriculture what it is, and every day sees some advancement—the more thoroughly its relations are investigated the better will be our practice. We need the thorough, wide-extended, deep research of the chemist with the experience of the practical farmer. The *reasons* for practice must be studied, in order to improve our practice. The action of manures is little understood in many respects: even now the best practice may be improved upon as knowledge increases.

To the State Agricultural Society the services of a chemist are now especially, practically useful in checking frauds in manures, (which flood our market and offer tempting opportunities for fraudulent dealing,) and in developing our internal resources of fertility. The muck beds and marl beds that lie unwrought should have the true value shown, and the ways to make it available pointed out—and so

with many other things, the wastes of our factories, etc., etc. By giving to the farmers of this State the results of the analyses of commercial fertilizers alone, the Society will do a service to the State, and, indeed, to more than our own State, that will be worth the salary of the chemist, ten times, aye, fifty times told.—*Homestead.*

A COLLEGE FOR FARMERS.

It is a disgrace to an intelligent community, to educate in every business but farming. It used to be held necessary to serve a seven year's apprenticeship to every "art and mystery;" that the learner should be held by indenture; but farmers were never indentured; they were supposed to pick up at random all that was necessary. To learn to make a *plow*, a boy studied under indenture, seven years, to learn plowing, he was thought to need no time at all. The cobbler was a seven years' graduate; but the farmer, who had to do with the soil and substance of things, was not a graduate in anything. Now, when botany, and chemistry, and climatology, &c., all enter into successful farming, should not a farmer be an educated man, a graduated farmer? Most of our professional men favor the idea; who, then, hinders the movement? To tell the truth, the farmers themselves—the very men whose occupation and interests are at stake—they are chiefly the men who are indifferent, and opposed. Now, farmers, is it not so? Look into our Legislature.—Who are the advocates of this bill for a *Farmers' College*? They are lawyers, merchants, doctors, &c. But who are the majority of the Legislature? They are farmers.—*Ohio Farmer.*

PEACH BUDS KILLED.

We regret to hear that the fruit buds of the peach were entirely destroyed by the severity of the past winter. In many cases, as we understand, the young peach trees were also killed. Apricots have doubtless shared the same fate, but as they are cultivated to a small extent only, the loss will be scarcely felt. These things occasionally happen, and nothing shows more conclusively the intensity of the cold. By the way, we perceive that there is considerable diversity of opinion in regard to the degree of cold indicated by th thermometer on the 23d of January. In the suburbs of the city, an instrument which has been in use for many years, and regarded as very accurate, stood at 20° below zero. Another on Bollingbrook st., a much lower locality, was two degrees lower. On the other hand, it is stated that the thermometers several miles out of the city were not more than from 10 to 12 degrees below. This is too great a difference to be ascribed to the variation of instruments. Something is doubtless due to the localities, and much more to the position of the instruments. But from the best evidence we can obtain, together with our own observation, the degree of cold was not less than 20 deg. below zero.—*Southern Farmer.*

A GREAT CHEESE FACTORY.

The Louisville *Courier* tells of a gigantic cheese dairy in operation in Trumbull county, Ohio. The proprietor does not keep all the cows from which his cheese is made, but contracts with all the farmers within eight or ten miles to furnish the curd from their cows at prices which net them a larger amount than if they manufactured it into cheese themselves. He usually pays about 4½ cents a pound for it. He keeps six or eight teams employed in collecting the curd from the neighboring farmers—some two hundred in number. Two rooms are occupied for curing the cheese, capable of holding 250 tons of cheese. In these rooms the services of three men are constantly required. When ready for sale the cheese is principally put up in tin boxes for the Californian and Australian markets. About 200 tons of cheese have been manufactured the past season.

From the American Agriculturist.

A SUBSTITUTE FOR HONEY.

WINTER CHERRY—PHYSALIS PERUVIANA.

Mr. Editor—As there appears to be a desire with many to introduce new plants as substitutes for those long known and cultivated, allow me, through your useful paper, to recommend a substitute for honey. Most people consider honey a great luxury, and if we are to credit history this has long been so, for in the early ages, when they wished to give the highest recommendation to a country, they said "it flowed with *milk* and *honey*." As we often use a substitute for milk, why not have one for

honey? Since the genuine article has become so scarce, I will recommend an article, which by taste, very few would be able to distinguish.

The fruit of the Physalis Peruviana, or Winter Cherry, when preserved with an equal quantity of white sugar, will be found equal to the finest honey for eating with biscuit and butter, and not readily distinguished by taste.

This plant, which is an annual of easiest culture, grows about two or three feet high, branching pubescent, leaves entire, fruit auxillary, about the size of a Catawba grape, enclosed in an inflated calyx or bladder, from which it takes its generic name. It ripens in September, and falls to the ground when ripe, when it may be gathered, weighed, put into a vessel with a little water and sugar, and boiled until the fruit becomes soft. The remaining part of the sugar is then to be added, and the boiling continued until of the desired consistency, when it may be put in jars for use.

When once introduced into a garden, there is no fear of losing it, as it will, like the tomato, grow readily from seed dropped in the fall; but those who would have the greatest quantity of fruit from a few plants, would do well to start them in a hot bed.

N. GOODSELL.

New Haven, Jan. 2, 1857.

TO MAKE HARD CANDLES OF SOFT TALLOW.

I noticed a request a short time since in the *Country Gentleman*, for a receipt to make a soft tallow hard. I send you one I know by experience to be good. To twelve pounds of tallow take a half a gallon of water, to which add 3 tablespoons of pulverised alum, and two ditto salt petre, which heat and dissolve; then add your tallow and one pound of beeswax; boil hard all together, until the water evaporates, and skim well while boiling. It should not be put in your moulds hotter than you can bear your hand in. The candles look much nicer when the wicks are not tied at the bottom. It is not only a disagreeable task to cut the wick off, but it injures the moulds. Never heat your moulds to draw your candles in cold weather.

Perhaps it is not generally known that tallow from beeves fed on corn or grain, is much softer than when fed on grass or clover. Therefore the tallow from grass fed cattle should always be selected for summer use, and the candles will always be hard with the addition of very little alum and beeswax. In very cold weather much less alum must be used, or they will crack so as to fall to pieces sometimes; and a third more of each should be used in very warm weather if the tallow is very soft. With a little management you can always have hard tallow for summer use where you make all your own candles. F.

PUTNAM C. H., VA.

[Country Gentleman.

SANITARY IMPROVEMENT—SEWAGE OF LARGE CITIES.

The methods in general use for disposing of this matter are objectionable in several respects, as they are injurious to health and comfort, as they pollute our rivers, and as large quantities of fertilizing matter are thereby wasted. To obviate more or less of these objections to the methods in common use, is a problem which has occupied the ingenuity of many minds, and which has led to the proposal of several methods.

At length one of the various plans proposed has been adopted and put into operation in the city of Leicester, England—a town of 65,000 inhabitants, and full of manufactories. The works for purifying and utilizing the sewage of this city, have been in operation since May, 1855. Since that period the works have been in constant operation day and night, and in the course of 19 months have separated about 6,000 tons of solid matter from 7,500,000 tons of sewage water, discharging only pure water into the adjoining river, which would otherwise have been contaminated by so many tons of impurity. The sewage is conveyed to a spot less than a mile distant from the town of L., and there as rapidly as it arrives, and scarcely allowing time for incipient putrefaction, it is intimately mixed with a body of lime and water, which produces an instantaneous and perfect deodorization. It is then filtered, and both, the fluid passing off, and the solid matter retained, are perfectly scentless. The filter system admits of no communication whatever with the atmosphere, at any stage of the operation, until the deposit is withdrawn from it in the form of flat, firm slabs, forty inches square and three inches thick. Several thousand tons of this half dry deposit heaped up in the yard of the Leicester works at one time, emitted no smell whatever. They are said to be as unobjectionable as unburnt bricks.

The fact that a plan of this kind has been found to work satisfactorily, is one of much importance, not so much on account of fertilizing matter which may thus be saved from utter loss and waste, as on account of the improvement which may be thereby effected in the health and comfort of the inhabitants of cities, in which that or some similar plan may be adopted. This consideration—that the health and lives of the population of cities are dependent in a great degree on the mode in which the sewage is disposed of—is of a higher order than the financial one. Still the saving of the nitrogenous matter of a large city is of no small importance, as at present prices of guano, there is a waste of such matter alone, saying nothing of phosphatic and saline materials, equal to about, or a little over one dollar a year for each inhabitant.

That the plan of rapidly removing, deodorizing and purifying the sewage of Leicester has been accompanied with a decrease of disease

and death, is a fact which is established by the tables of mortality—the decrease in the number of deaths amounting to 275 yearly in a population of 65,000.

To aid in bringing about a similar result in any of our large cities, seems to be an object worthy of any man's ambition; and to have accomplished such a result must be to any city, government or population, a just source of pride and gratifying reflections.—*Country Gentleman.*

LETTER ADDRESSED TO MR. LAWES OF ROTHAMSTED, BY M. PAYEN,* UPON THE QUESTION OF MANURES.

Translated from *Le Bulletin des Seances de la Societe imperiale et contrale d'agriculture, Mai* 1856, by Dr. A. L. Elwyn, and read at the February meeting of the Philadelphia Society for Promoting Agriculture.

SIR:—I have read with much interest, the answer which you, in connection with Dr. Gilbert have made to the theories and principles of the agricultural chemistry of M. Liebig, as also to the objections of that illustrious savant to your own experiments. This discussion, based upon citations and positive facts, appears to me to settle clearly the question of manures.

The results of your beautiful and persevering experimental culture, elucidated by numerous analyses, demonstrate the important function of the azotized substances, and of the mineral matter of the soil; a function which is never exclusive, but which becomes predominant sometimes for one, sometimes for others, according to the plants which successively occupy the earth, in a rotation of crops.

You have yourself determined relative to your soil, the predominent usefulness of the phosphates for turnips, of the salts of potash for leguminous plants, and of azotized substances for the production of wheat. These results, the elements of which I have seen with so much interest, in your fields, and your fine laboratory at Rothamsted, agree with the facts well observed in France by our agriculturists. They also agree with my researches upon the structure, the chemical composition, and the development of vegetables; results and researches which we can understand better when we observe the immense number of radicles which develop and multiply in the soil, assimilating, the further they penetrate, not only dissolved mineral matters, of which we find the combinations often transformed in plants, but also considerable quantities of azotized substances which they add to the ascending sap, and deposit upon the walls of the sap-vessels. They thus concurrently with ammoniacal gas and the azote which the leaves have the power directly or indirectly to draw from the atmosphere, nourish the tissues in process of formation, and the young shoots always rich in azotized substances.

In the presence of these well-authenticated facts of experimental culture, of organography and vegetable physiology, we cannot overlook the absolute necessity of the pre-existence and the continuance of a large quantity of azotized substances in the soil, in order that it may possess and retain its fertility, always admitting the indispensable utility of the mineral materials appropriate to the wants and different aptitudes of vegetables. We could not, therefore, regard otherwise than as you have done, the following too exclusive assertion of M. Liebig, which you quote:

"If these elements (mineral matter) are to be found in sufficient quantities and proper proportions, the soil offers the conditions which render plants capable of absorbing carbonic acid and the ammoniacal gas of the air, which is to them an inexhaustible reservoir."

We might have admitted *a priori*, a similar theory, at the period when physiologists, not valuing the azotized substances, drawn by vegetables from the soil, saw in the ascending sap only water, salts, and carbonic acid, and then as the liquid ascended higher in the tissues, gum and sugar.

As you observe, it is evident from simple facts that the efficacy of guano in the production of wheat, is measured by the proportion of azote, and not of phosphates, because the azotized matter is found in large quantities, and the phosphates in relatively small proportions; this substance, therefore, brings double the price of other commercial manures, rich in phosphates but deficient in azote. Finally, long practice has proved that guano of the highest price, containing the most azote, produces more grain than guano of a lower price, relatively richer in phosphates.

M. Liebig has said in his fourth edition of Organic Chemistry, and its application to agriculture, that "Ashes can be substituted for animal manures, and if a proper choice is made, they will give to the fields all the constituent

* Few men in Europe enjoy a higher reputation in the department of applied chemistry, than the illustrious author of this letter. The friend and colleague of Boussingault, he has been commissioned by his government with important examinations in vegetable and agricultural chemistry both at home and abroad. His opinion on the much-mooted question of the value of the fixed mineral constituents of manures, is, therefore, worthy of the fullest confidence. This question, in its various bearings, may be regarded as the most interesting and important one which has engaged the attention of Agricultural Chemists since the time of Davy. Until the precise relation of the plants, that constitute the bulk of our crops, to the soil and to the atmosphere be established, all processes for the amelioration of the soil must be empirical and constantly changing, and the gains of the farmer uncertain, and frequently unremunerative.—[ED.]

principles which have been carried off by the harvest of cultivated plants." And in the same work—"It is very important in agriculture, to know, with certainty, that a supply of ammonia is superfluous, if the soil contains a sufficient provision of mineral nutriment."

Upon these views were founded the manufacture of purely mineral manures, directed by Mr. Muspratt, whose products have had in general no great success. The preparation, however, of manures, from blood and pulverized bones succeeded in France, as in England, and has lately won silver medals for MM. Derrien of Nantes, and Jonas Webb, (England) who had sent their products to the Universal Exhibition of 1856.

No agriculturist believes, now-a-days, that manure can be replaced by ashes which are the result of its combustion, nor by any other mineral substance deprived of nitrogen. The results of small experimental cultivation undertaken and followed up for several years with so much care, in soils containing the ashes of vegetables, but exempt from nitrogenous substances show, that plants, cultivated in such conditions, even though in the open air, take very little nitrogen from the atmosphere, and furnish a much smaller crop, compared with plants developed under the influence of azotized manures.

On the other hand, the traditional practice of our market-gardeners, demonstrates that they can increase five or even ten times the product of the cultivation of the soil, if they will but furnish to plants those manures which abound in nitrogenous substances easily decomposable; remembering always, to renew these manures whenever their ammoniacal exhalations become too small in amount. Skilful gardeners are very far from wishing to confine themselves to the gas which the atmosphere furnished to them gratuitously; they know, by experience, that no combination of mineral materials, or of ashes, would furnish them with like results. Furthermore, the rare discrepancies on these various points will soon be merely apparent, and doubtless, chiefly on account of your elegant processes and conscientious labors, will speedily cease entirely.

Already one sees with the utmost satisfaction, a spirit as eminent as M. Liebig, giving his evidence to facts, which you have already brought to light. Such is seen to be the case from many quotations from his own maxims; and especially from the following passages which you have quoted:

"While the ground is lying fallow, the carbonic acid and the ammonia are introduced into the soil by the rain and the air. The ammonia remains in the soil, whenever it finds there, in sufficient amount, substances capable by combining with it, of depriving it of its volatility. But the means of preparing the soil, in such a manner as shall best enable it to extract from the air, and from other natural sources, the maximum of azote to condense into its own products, is, in reality, a problem worthy of scientific agriculture."—*Principes de chemie agricole au point de vue special des dernieres recherches faites en Angleterre*, 1855.

Evidently this is but one steep from the recognition of the full utility of nitrogenized manures, in causing the soil to produce the maximum crop.

Let us hope that M. Liebig will before long admit, with all the best farmers, with most savants who employ themselves in agricultural chemistry, and with the chemists commissioned to analyze the commercial manures, in the storage-yards of the French government, that the determination of the nitrogen and the phosphoric acid in manures, affords the principal measure of their commercial value, since it represents those particular kinds of food for vegetables, which cultivators find it most difficult to procure economically; others, such as carbonates of lime and magnesia, plaster, and the alkaline salts, can be obtained at small expense, as also, those organic remains, poor in azote, which furnish, by their spontaneous decomposition, carbonic acid, a substance which is also often found in excess among the stubble and other remains of former culture.

Finally, one should recognise this fact, (and without doubt, you will be of the same opinion) that if M. Liebig has given neither the means to furnish economically artificial manures to the farmer, nor the true theory of the nutrition of plants, he has, at least, rendered some important services to agriculture.

Always exaggerating the power of mineral substances to fertilize the soil, he has given immense publicity in Germany, England, America and France, to exact ideas as to the utility of this important part of vegetable nutrition.

In pointing out one of the causes of the exhaustion of the fertility of the soil, he has excited the lively attention of cultivators, especially in England, where he indicated a danger, which appeared to him very formidable.

He has finally succeeded, by prompt and sure ways in demonstrating to the farmers of all countries, the advantages (hitherto but too little appreciated, in spite of the efforts of other savants,) of chemical analysis applied to soils, to manures, and to crops.—*Pa. Farm Journal.*

FOUR FIRESIDE SAINTS.

We extract the following from *Punch's* calender of matrons rendered worthy of his immortal cannonization by their eminent Fireside virtues. Would that they might all find imitators now:—

St. Phillis.—St. Phillis was a virgin of noble parentage, but withal as simple as any shepherdess of curdis and cream. She married a wealthy lord, and had much pin-money. But when other ladies wore diamonds and pearls, St. Phillis only wore a red and white

rose in her hair. Yet her pin-money bought the best of jewelry in the happy eyes of the poor about her. St. Philis was rewarded. She lived until fourscore, and still carried the red and white rose in her face, and left their fragrance in her memory.

St. Norah.—St. Norah was a poor girl, and came to England to service. Sweet-tempered and gentle, she seemed to love everything she spoke to; and she prayed to St. Patrick that he would give her a good gift that would not make her proud but useful; and St. Patrick out of his own head taught St. Norah how to boil a potato. A sad thing, and to be lamented, that the secret has come down to so few.

St. Phœbe.—St. Phœbe was married early to a wilful, but withal a good-hearted husband. He was a merchant, and would come home sour and sullen from 'Change. Whereupon, after much pondering, St. Phœbe in her patience set to work, and, praying the while, made of dyed lamb's wool a door mat. And it chanced from that time, that never did the husband touch that mat, that he did'nt clean his temper with his shoes, and he sat down by his Phœbe as mild as the lamb whose wool he had trod upon. Thus gentleness may make miraculous door-mats.

St. Sally.—St. Sally, from her childhood, was known for her innermost love of truth. It was said of her that her heart was in a crystal shrine, and all the world might see it. Now, once when other women denied, or strove to hide, their age, St. Sally said—*I am five and thirty.* Whereupon, next birthday, St. Sally's husband, at a feast of all their friends, gave her a necklace of six-and-thirty opal beads; and on every birthday added a bead until the beads amounted to fourscore-and-one. And the beads seemed to act as a charm; for St. Sally, wearing the sum of her age about her neck, age never appeared in her face. Such, in the olden time, was the reward of simplicity and truth.—*Am. Agriculturist.*

Kidney Worm in Swine.—John K. Warren writes, "I am desirous of obtaining information regarding the Kidney Worm in Swine, symptoms, cause, and proper treatment—and of worms generally in that kind of stock. Can your readers inform me how to treat the scurf that appears upon the skin, especially of the back of the Suffolk breed, supposed to be *mange*, but now think it the effect of cold weather."

Kidney Worms.—Cole in his "Diseases of Animals," says: "This disease is indicated by weakness about the loins." It will also exhibit itself in inability to use its limbs—sometimes one fore leg will refuse to do its duty—sometimes both hind legs are powerless.

Remedy.—The above named author says: "Corn soaked in lye of wood ashes, perseveringly used, has cured in many cases. Another writer says, "this may do in recent and slight affections; but a more certain treatment is to make an incision about an inch long, on each side of the back bone over the kidneys, and after separating the skin slightly from the parts beneath, insert two or three cloves of garlic. Take a stitch to confine the garlic. Dr. Holmes of the *Maine Farmer* thinks pieces of onion or garget root would do as well."

A writer in the *Southern Cultivator* says, to effect a cure requires nothing but a free use of copperas dissolved in water and mixed with meal so as to form a dough. It will require some six or eight doses to cure a hog after he has got down. All farmers should give this to their hogs several times in the spring of the year—in fact, it is good for them occasionally through the year." The same writer says: "Copperas will destroy the large worms frequently found in the bowels of a hog, as well as those in the kidneys. One ounce or less is enough in any case. Sulphur is also good for hogs, and enough of it will make them shed lice if they have any, and may be given without any risk of danger."

Another remedy of "kidney worms," we have seen, is to place the hog on its back and tramp its bowels across the kidneys. Another, *gash* the hog on the back and fill the cuts with salt; another has cured the disease by making an incission over the kidneys near the spine, about four inches long and something over an inch deep, filled it with pods of red pepper and then sewed it up. Another, by putting spirits of turpentine on their backs just over the kidneys, and repeating the application once or twice if necessary. Has never known it to fail. This is more humane. Another, in the *Ohio Cultivator* is "to give the animal afflicted 1 oz. copperas daily for six or eight days. Make a slop of about two quarts of corn meal and dish-water; dissolve the above quantity of copperas in a tea-cup of warm water and mix the whole together. Then give it to the hog." The disease of several months standing has been cured in this way.

Worms in the Intestines.—Youatt says "the presence of worms may be inferred when the animal eats voraciously and yet continues lean and out of condition, coughs, runs restlessly about, uttering squeaks of pain, becomes savage. The excrements are generally hard and highly colored, the eyes sunken. The animal becomes debilitated, and has frequent attacks resembling cholic, which tend to weaken him. Too often he dies; for before these symptoms have been noticed the evil has generally attained to such a height as to be beyond the power of medicine; for these parasites multiply with incredible rapidity.

Remedies.—Drastic purgatives constitute the most efficient means of combatting worms; but they must be cautiously administerd, as they are but too apt to dissolve and force away the living mucus of the intestinal canals. Turpentine is exceedingly destructive to worms, and

although to many of our domesticated animals a dangerous medicine, it may be administered with perfect safety to the hog. Common salt may be given with advantage, and should be mingled with the food. Nor must it be supposed that because no worms are seen to come away from the animal the nutriment may be discontinued, or that there are none; hundreds of them die in the intestines, and there become digested and decomposed, and go through the same process as the food."—*Prairie Farmer.*

APPLICATION OF SALT-PETRE TO SEED WHEAT.

GEO. C. GILMER, ESQ.:

Dear Sir.—I have just received your letter of the 17th of Dec. last, published in the Southern Planter.

Save your salt-petre until next fall, and use it as I have recommended. You might just as well expect to heat your cooking stove to do the baking, by building the fire upon its hearth, as to expect benefit to your wheat crop by distributing a pound of salt-petre upon an acre of land. It would doubtless be of some little service to the soil, but of so inconceivably little to the wheat crop, that I should regard it as so much money uselessly expended.

By pursuing my directions, you bring the benefit of the nitre into immediate use, by the grains of wheat absorbing its fertilizing property—and besides, you gain the benefit of the wheat grains being enveloped in the ashes or lime used. The first of which articles is admitted by everybody to be among our most valuable fertilizers.

My object in adopting the process, was to manure the seed instead of the soil, so as to give a vigorous and healthy start to the wheat, by enabling it to throw out strong roots to withstand the winter and promote its after growth.

I have no doubt, if wheat was rolled in guano, by making it wet with some glutinous water to make the guano adhere and envelope the grains, that its benefits would be greater than if sown broadcast. You are a practical farmer. I am not. Pray try it. If we expect to gain benefit by one power being applied to another, they must come in contact at some points, otherwise nothing is achieved.

You say you always derive great benefit by using guano in the drills for tobacco. Why is this? It is because you bring its effects immediately in contact with the seed itself.

If you take a pound of nitre (pulverized,) and sow it upon an acre, how many of its minute particles would come in contact with the grains of the wheat. Such an experiment is too much like the Homœpathic system of attempting to arrest a violent attack of disease, where the lancet or other potent remedies would be necessary to save life.

With the wishes of your "unknown friend," that your life may be prolonged to test my suggestions of applying manure to the seed, where it is not practicable to manure the soil,

I remain, most respectfully, yours,
INCOGNITO.

MORE ABOUT THE OAT CROP.

February 28th, 57.

Mr. Ruffin,—Your interesting article on oats reminded me of Mr. Hill Carter's remarks on that crop in the Farmer's Register, Vol. 1, p. 134, as follows—

"I have tried the oat crop instead of the corn crop as a cleanser, but it will not answer. The oat crop is an effectual cleanser of onions for the time being, that is to say your crop of wheat for two or three years after the oats, will be perfectly free from onions, but they will return after a while if you stop the oat system. But the oats do not in the least prevent the growth of blue grass, wire grass, or partridge pea, and a hoe crop is the only remedy. I shall now be compelled to my sorrow to abandon oats as a cleanser and substitute the corn crop, so foul has my land become of everything except the onion which the oat crop has kept under. I have this year lost one-third of my wheat by blue grass. I consider the oat crop, if a heavy one, fully as exhausting as the corn crop; and I do not regret being obliged to abandon it, and take up the corn crop on that account, but I regret it on account of the onion of which the corn crop is not half so good a cleanser, and besides I shall find it too laborious to cultivate one-fourth of my land in corn in addition to my swamp land: but it must be done, there is no alternative, for the blue grass must be checked."

On p. 106, same vol., "A walk through Shirley farm," occurs the following—

"The wheat after clover in the present rotation is usually double as much as the same land will bring two years after when succeeding oats"

The important fact that "the oat crop is an effectual cleanser of onions for the time being," I first learned from this communication, but fortunately have not been obliged to resort to it for that purpose.

As an improver, I can, according to your general invitation, add my testimony, but it will be, as an old bachelor friend of mine said of the ladies, mostly found in the negative.

My first effort was on a poor hill not very steep but gently rounding and a fine exposure. The oats were sown with clover especially to fall on the land and give it a full benefit, but the failure altogether so signal, that it was not repeated. The same hill I should like to show you now (last of February,) improved by other methods, covered with wheat that will hide a partridge if not a hare. Another more striking

case was a fine level piece of land carefully managed from the stump, or time of its being cleared. It had been cultivated only in tobacco and wheat, followed by clover, and never in corn. On this land a fine crop of oats was grown, and when just ripe was well ploughed under, and the next year put in tobacco without any perceptible benefit then or since.

As to sassafras, I once tried a crop of oats on land covered with that pest as high as a man's shoulders, plowing it well in May when the leaves were half grown, and harrowing it thoroughly, dragging up immense piles of them, and then sowing the oats with the harrow, which made a fair crop for the land, and crippled the sassafras surprisingly.

So far, you see, I am entirely in the negative; yet I think your's an excellent editorial. The *facts* you give are very striking, and will at least serve to correct a general impression as to the excessively exhausting power of this crop, taken up chiefly from the naked state in which it leaves the land.

Your deductions are admirable, and I think, deserve to be stereotyped. Please reprint them here, as the best conclusion I could desire, and oblige yours, sincerely, M.

SUBSOIL PLOUGHING—WHEAT CROP IN CLARKE.

White Post P. O., Clarke Co. Va.,
February 27th, 1857.

I have undertaken this spring to plow 90 acres for corn, with two three horse McCormick plows, which are followed with two of my best subsoil plows, which makes my plowing average from 15 to 18 inches in depth. I have been plowing eight days, and think I have averaged nearly four acres per day. I mention this to show you that I, although a leaser of land, believe that subsoiling pays in the long run. I find it is all a notion with a farmer, when he says he has not time to subsoil his land. It is a *want of faith*, a *stingy fear of losing what he has gotten out of the soil without helping it any*, that prevents him from making a fair trial, or a succession of trials, for I do not consider one trial a fair test. I venture to predict that at no distant day all the clay lands, or lands with clay subsoils in Virginia, will be subsoil plowed. I stated to you two weeks or more ago that the wheat was but little injured by the winter, since then it has grown very much and looks nearly as promising as it did in November last. I find that the wheat seeded before the 20th of September, has some fly in it, and it is generally in what is called the flax-seed state. If the present prospect is anything like realized, we shall have a heavy crop in this section of the state, and I assure you we stand in need of it, having had three successive poor crops in consequence of *joint-worm, chinch bugs*, and dry, cold springs, up to harvest.

In haste. Yours, very respectfully, &c.,
ISAAC IRVINE HITE.

SEED CORN—SASSAFRAS—JOINT WORM.

Cumberland, March 11, 1857.

My Dear Sir—Your request that I should write for the "Planter," is a compliment much prized. I fear, however, I shall not be able to contribute anything worthy such a destination. As I have several matters, which it might be well enough to make public—none, however, of much importance—I will embrace them in one article.

SEED CORN.

I do not know what could have been alluded to in your letter on this subject, unless it was the method observed by the late Col. Edward Ward of Alabama, in selecting corn for seed, which I have long adopted, with much satisfaction. It consisted simply in picking out the largest and fairest ears of corn, and then shelling off, by hand, the large tooth-shaped grains, at the big end of the cob, for seed, and but very little more. The remainder of the ear was applied to other uses. In this way, Col. Ward most certainly improved his kind of corn very much, as was most manifest to the many friends whom his hospitality and worth brought about him. Such grains are twice as heavy as those near the little end of the ear, and, of course, yield twice as much nutriment to the sprout of corn when it first germinates. I have seen this proved experimentally. A small piece of rich garden ground was planted, with such grains, in rows alternating with rows of grain taken from near the little end of the cob. In six weeks, the first were three times as large as the latter, and maintained their superiority till fully ripe.

Much has been said, which I have esteemed of but little value, on the subject of double-eared, or, twin corn. A friend of mine—now for many years dead—long ago proved, by accurate experiment, that good land would yield the same, in weight, of any two kinds of corn; but about twice as much, in bulk, of the lightest sort of corn, as it would of the heaviest.—Whatever the kind may be, Col. Ward's method of selecting such seed as contain most food for the young plant, I think the most rational.

Before leaving the subject of corn, I will mention a terrible pest, with which we, in this region, are sadly annoyed, especially in stiff low grounds. It is what we call the wire worm, a small chesnut-brown worm, with many legs and a hard shell, composed of many little rings. They eat into the grain—sometimes eight or ten bury their heads into one grain, and devour what was intended as pabulum for the germ. The best preventive against these that I know, is, after soaking the seed corn, all night, in warm water—to secure its sprouting, in case of dry weather—to smear it well with warm tar, and then roll in flour sulphur and powdered Gypsum. Those who neglect this, sometimes have to plant their corn four or five times over.

SASSAFRAS.

My late friend and countyman, John C. Page, Esq., one of the best agriculturists that I have known, destroyed sassafras in the following manner. He had it cut off, with grubbing hoes, below the surface, in winter or early spring, that there might be no hard wood to contend with, in the after treatment. Again, the sprouts were closely cut off with briar-hooks or old scythe blades, in the month of May while they were tender. This was done merely to remove them while soft, lest they should become hard before the last cutting. They would, however, soon spring up again, and in August, they were again reaped off, close to the ground.—This last reaping generally exhausted the roots so much—depriving them of air, through want of leaves—that they died. I have not had occasion to use such means in the destruction of sassafras. With me, they have only grown in detached patches, which I could easily exterminate by making summer cow or sheep pens of their sites for one, or if necessary, two summers successively. I know you will unite with me in deploring, that agriculture should have lost so much strong practical and judicious management, and the community so much worth, by the death of John C. Page. Honour to the memory of such men, wherever they may have lived!

JOINT WORM.

During the spring and summer of 1854, I firs saw the insects called Joint Worms. They did great harm to our wheat crops in that year, much of which was charged to Hessian fly and chinch bugs. Scrutinizing their habits I found that the fly made its appearance between the first and middle of May—that it deposited its eggs in the sheath or boot of the upper joint of the straw, and of the joint next below—that most of the straws thus treated by them failed to grow high enough to reach the stroke of the scythe, and consequently were left in the stubble field—that by the time of harvest the little worm became a chrysalis, doomed to remain in the straw, chiefly in that part of it called stubble, until the next May, when it hatched out into the fly-state again. Considering that nature had thus provided a law for their existence, in the straw and stubble above ground, I thought that by altering the conditions of that law, so as to secure their being buried underground, we might either exterminate or so much diminish them, as to render their ravages comparatively innoxious. Some time in the summer of 1854, I sent an article, to this purport, to "The Southern Planter."—Another writer in "The Planter" has since confirmed these opinions, by taking somewhat the same view of the matter. Since 1854 there has been so much dry cool weather, in April and May, and so many chinch bugs, that the wheat did not begin to head until about the 1st of June, after most of the joint worm flies must have died. I fear that the general belief that they are disappearing is a mistake. I still try to provide against them, by burying their larvae alive. If we have a genial spring, I shall be able to report to you whether I gain by it, or to rejoice with you and the whole land, that they are, in reality, disappearing.

I have heard that a gentleman, at a distance from me, in a district infested with joint worms, for certain reasons, sowed wheat, in the same ground for two years in succession, and made a fine crop the second year, while all his neighbors signally failed, on account of the joint worm. Who can assign a better reason for this, than that he destroyed, by burying all the joint worms of his own raising, and had none to disturb him, but stragglers from the neighborhood? Very truly yours,

W. S. MORTON.

For the Southern Planter.

QUÆRE ABOUT MAKING DOMESTIC SUGAR.

FALMOUTH, Stafford Co., Feb. 28.

Mr. Editor—

May I be permitted to ask through the columns of your journal, whether any of your readers have been successful in the domestic manufacture of sugar or molasses, in a small way, from the *watermelon*, or the *sugar-beet*, or the *sugar-millet*.

The present exhorbitantly high prices of the above articles, and which according to all published accounts, promises to go up still higher, calls on those who are fond of "sweets," to look around for some new source from whence to obtain a portion, if not all, for domestic consumption at least, of molasses, if not of sugar. I can hardly doubt that some efforts have been made to make molasses from the watermelon, I should like to hear of such efforts, and if they have proved failures, what has been the most probable cause of such failure, and whether they can be remedied so that it can be made in a small way.

Is it not a question also well worthy of consideration whether guano will pay a remunerating profit at its present high prices; and if not what shall we have as the best substitute, and whether there is any green crop that can be turned under that will at all compare with it.

Yours, most respectfully,

A. N. D.

For the Southern Planter.

White Post P. O., Clarke Co. Va., *February* 26th, 1857.

Experience in using reaping and mowing machines for several years, induces me to recommend to all who think of using them in future, to pick up, in the month of March, all loose stones, stumps, roots, &c., that might come in contact with the cutters of any of the

eaping machines now in use. Meadows should e cleaned off earlier than wheat fields. It is lso very desirable to place a stake five feet long rmly in the ground by the side of every small r large stump, or fast rock, that the driver may void it, or raise the machine and let it pass ver.

I. I. HITE.

A CHEAP BEE HIVE, &c.

We annex below Mr. Quimby's plan of aking cheap bee hives, written for the *merican Agriculturist*. It is so near our wn system, as recommended by us in our ublications, that it seems like reading *erbatim* from the "American Bee Keep- r's Manual," a work that we published me seven years ago, and which now ntinues to have an extensive sale.

Recently there has been considerable id in the papers in regard to the great uantity of honey *said* to have been sold y Mr. Quimby last fall. It is said that e sold *twenty thousand* pounds! It is ur opinion that the statement is false—a eception for some ulterior purpose. Mr. uimby resides in Montgomery Co., not r from Utica, and in 1855 and 6—ac- rding to his *own* statement in certain pers, had but *about two hundred* hives, d these were located in three different aces. Now, 20,000 lbs. of honey from 0 hives, is 100 lbs. to each, and every e keeper knows that no such quantity n be produced by bees. In no case can rge apiaries be made to *average* a sur- us of over ten or fifteen pounds of honey om each *old* stock of bees, and in many ctions of the country they will not aver- e so much, and *swarms* in such places oduce little or no surplus the first sea- n. Ten pounds per family would pro- ice, in Mr. Quimby's case, some *two* ousands lbs. of surplus honey, and that antity is all, in our opinion, that he can ve sold in one season, from his *own* es.

Were we to say, that Mr. Q. has desired *excite* the public mind, and thereby sell s book, the "Mysteries of Bee Keep- g," or that Mr. Judd, the editor of the *griculturist*, has endeavored to create a *ror* among bee keepers, to learn through *s* paper the great "mystery" of produ- ng such an enormous product of honey, e should say what we have no positive oof of; but still, we have our opinion on ese points, and if Mr. Q. will *prove* that he really did sell *twenty thousand* pounds of honey last fall, we will give him our columns to do it in, and we will beg his pardon, and Mr. Judd's, a thousand times for the surmises here set forth.

We feel that it is our duty to protect the bee-keeping community from imposition, being the author of a work on bee keeping, as our reputation is at stake for positions taken in bee culture, that would be overthrown, if it were possible for 200 stocks of bees to produce 20,000 lbs. of *surplus* honey in a season.

We shall send a copy of this paper to Mr. Q., and invite the proof of the alleged sale for publication in the *Rural*, and if his statement is true, he shall have the benefit of our circulation to crown him the "King of bee keepers," and furthermore, we will allow him to descant on the merits of his book on bees, and sell all he can to our subscribers.

The whole secret of Mr. Q.'s success in bee culture lies in the facts, that he devotes the most of his time to a faithful attention to them, and the section of country where he resides is one of the best for bees in the whole United States. Let no one suppose that in New England, or any other location, where the bee pastures are not white in June with white clover, that great results in surplus honey can be obtained uniformly.

Here is his plan for cheap bee hives:

When the *profit* of bee culture is the only object, of course the cheapest route to reach that point will be adopted. If with a hive costing twenty-five cents, we secure the same results as with one costing five dollars, we save just the difference. If any one desires ornamental hives to correspond with his establishment in other respects, that is different, and there can be no objection, of course, but the extra expense should not be charged to the bees as a necessary outlay. With these preliminary remarks, I will proceed to describe a hive in its simplest form, but one which will give every facility for obtaining the purest honey to be had, in any style.

First. The general form of the hive is a wooden box, the internal size being say twelve inches square and fourteen inches high, made of sound boards an inch in thickness, and unplaned either within or on the outside, except at the edges, to

make close joints. To construct it, cut boards fourteen inches long, two of them twelve inches wide, and two fourteen inches wide. These nailed together at the edges, the wider ones being put over the edges of the other two, will make the inside size as above, viz: twelve inches square and fourteen inches high, and the hive will contain a little over two thousand cubic inches.

The size is important. There should be room for brood and for storing a winter supply of honey in *one apartment*. If too small, an insufficient supply of food will be stored; if too large, more honey than is necessary will be stored in the hive, when it ought to be in boxes above for profit.

I stated that the size should be about two thousand cubic inches, but I would vary the size with the latitude. Say south of 40 degrees, where the winter is comparatively short, a less size will do, as a less quantity of honey for food will be required. But here another point must be kept in view: there *must* be room for all the brood combs needed by the queen, otherwise the stock will run down for want of new recruits. From several experiments to ascertain this point, eighteen hundred inches is indicated as all the room necessary for that purpose. Perhaps the last size would be the proper one for profit any where south of the latitude of 40 degrees, and in no case would less than one cubic foot (1728 inches) be advisable.

For the top, take a board fifteen inches square, which would allow it to project half an inch over each side of the hive. Plain only the upper side. Around the edges of the planed side, rabbet out the corners half an inch deep, and an inch inward so that another box a little larger than the main hive can be set over it and fit into the rabbeted edge of the cover. Through the cover make two rows of holes, say about three inches each side of a line drawn through its centre. These holes should be made uniformly distant, because it is necessary to have a rule to go by in making glass boxes to fit over them. A pattern to make the holes by is very convenient. The cover can now be nailed on.

Make a small opening for the passage of the bees in the front side of the hive, either at the bottom, or part way up; or, what is better in both places. These will be sufficient for ventilation, except, in hot weather, when the front side of hiv containing full stock should be raised h an inch or so to admit air. Put stic across the inside to support the com close to the holes in the top, and this p of the hive is ready for the bees.

The honey to be removed from the be is stored by them in glass boxes set up the top of the hive. There may be t or four of these, the number dependi upon the size desired, and they can be inches, and $6\frac{1}{4}$ or $12\frac{1}{2}$ inches long. T top and bottom is made of wood and t sides of glass. For the wood, take th boards, and plane down to one-fourth an inch, cut the proper length and wid and make holes in the bottom piece to c respond with the holes in the top of t hive. The posts or corner-pieces are fi inches long, and say five-eighths of inch square. In two adjacent sides each piece make a narrow groove or cha nel, one-fourth of an inch deep, for gl to fit in. Fasten these upright pie upon each corner of the bottom by nail through into the end. The glass si previously cut out of the proper size, then slipped down into the grooves. N stick fast to the top piece some pieces new white comb, an inch square, as a ginning for the bees—one edge dipped melted wax and applied before cool will hold these bits of comb fast. Th put this top piece on, fastening it to t top of the upright posts of the corner w small nails. The boxes can be set av until wanted for use. The glass sides r be cut from common window panes. Fi the size above indicated, that is 5 inc high, and 6 or 12 inches long, panes 10 12 inches cut up without waste. small upright corner piece may be wor out in long strips, and then cut up to required length. A thin grooving pa or a saw, will cut the grooves for the g readily.

A covering over the glass box is nec sary. This is to be made of boards, 7 inches deep, and exactly 13 inc square on the inside, so as to fit down u the rabbeted edge of the cover to the m hive, and shut out all light. Bees work in such boxes without the rabbe around the edge of the top, but un there is a close joint to shut out light, glass and combs do not appear so clea when it is perfectly dark.

I have thus given a full description of
that is really needful in a bee-hive.
it those who wish can have the outside
aned and painted, and add moldings,
ntals, and any amount of ornaments;
long as the principle is observed it will
t interfere with the prosperity of the
es. Even an excess of ornament would
attended with less expense than most
tent hives not half as good. There is
t the least necessity of the simple hive
sting over 25 cents, the cover to the
xes 12½ cents, stand 6 cents, roof 6
nts, or all complete for 50 cents. The
ass boxes would cost the same for any
ve, and are not reckoned.

The stands for the hive to rest upon and
e roofing, are yet to be described. The
and is made of inch boards, 15 inches
ide by 2 feet long, the ends nailed on
eces of wood or joist from two to four
ches square, and put directly on the
ound, with the hive on the back end.
he advantages of this arrangement are
fficient to balance any little trouble of
eeping down weeds, grass, &c. The roof
made by two boards, 10 by 24 inches,
ailed together like a house-roof, and laid
n the top loosely. One great advantage
separate stands, is, there is no difficulty
allowing plenty of room between stocks,
hich is an important consideration.

Rural American.

RAISING POULTRY.

Mr. C. N. Bement writes to the *Country Gentleman* a long communication on raising fowls, from which we extract, as follows:

Let us suppose that there are in this country three millions of families that possess all the conveniences to keeping poultry, more or less. The number is doubtless greater; for there is no animal that breathes in the service of man, which has such powers of self-multiplication or productiveness as fowls. Then let it be supposed that to each of the families belong ten hens—a very moderate allowance surely—yet this will make thirty millions for the entire country, which at thirty cents each constitutes an entire investment of $9,000,000. Again, if each of the stocks of hens lays only twelve dozen eggs in the year, less than one dozen in four weeks—there will be a product of eggs in the entire country of 360,000,000 of dozens. These eggs are worth at least two dollars for each hen. But allowing one-half to go for feeding them, there will be left a net profit from the eggs of $24,000,000 annually, making a net profit of 60,000,000 from the combined productions of eggs and chickens.

Let no one infer from the above, that poultry raising can be made profitable on an *extensive* scale. A large number of fowls confined in a yard will not prosper, as has been demonstrated many times. From 20 to 50 are quite as many as should be kept by any one. Mr. B. would make his readers believe that *twelve dozen* eggs a year are an under estimate of the number that fowls actually produce. He ought to know better, as he is the author of a work on domestic poultry. Taking fowls as they run in the country—common breeds, and crosses of all imaginable varieties, and they will not average over *one hundred* eggs to the hen, per annum. We speak from long experience, and a test of the question. Now, it will cost *one dollar* a year to support such fowls, if all their food is purchased at the present rates of grain, and the reader can see for himself how much profit is made on raising fowls, taking the value of the eggs only into consideration.—*Rural American.*

TO SWEETEN RANCID BUTTER.

An agriculturist, near Brussels, in Europe, having succeeded in removing the bad smell and disagreeable taste of some butter by beating or mixing it with chroride of lime, he was encouraged by this happy result to continue his experiments by trying them upon butter so rancid as to be past use; and he has restored to butter, the odor and taste of which was insupportable to all, the sweetness of fresh butter. This operation is extremely simple and practicable for all. It consists in beating the butter in a sufficient quantity of water, into which had been mixed 25 or 30 drops of chloride of lime to two pounds of butter. After having brought all its parts in contact with the water, it may be left for an hour or two; afterwards withdrawn, and washed anew in fresh water. The chloride of lime used, having nothing injurious in it, can safely be increased; but after having verified the experiment, it was found that 25 or 30 drops to two and a half pounds of butter, were sufficient.

THE SOUTHERN PLANTER.

RICHMOND, VIRGINIA.

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All Payments to the Southern Planter will be acknowledged in the first paper issued after the same shall have been received.

All money remitted to us will be considered at our risk *only* when the letter containing the same shall have been registered. This rule is adopted not for our protection, but for that of our correspondents; and we wish it distinctly understood that we take the risk only when this condition is complied with.

It is indispensably necessary that subscribers remitting their Subscription, should name the Office to which their papers are sent; and those ordering a change should say *from* what to what post office they wish the alteration made. A strict observance of this rule will save much time to us and lose none to them besides insuring attention to their wishes.

Postmasters are requested to notify us in *writing* as the law requires, when papers are not taken from their Offices by Subscribers.

RUFFIN & AUGUST, *Proprietors.*

OFFICE: No. 153, Corner Main and Twelfth Streets.

CORN PLANTERS.

There are several implements of this class which perform their work admirably; and we earnestly beg every one who reads this article to get one of some of the various patents, and plant the corn crop with it.

We have tried two of these implements; and each was successful. We own Emery's, an Albany invention, advertized in this No. o the Planter, by Thos. Branch & Sons, Peters burg, and by parties in Richmond, and w have tested it sufficiently to recommend it witl confidence. We borrowed last year, and trie it on the same land with Emery's, a Corn Planter invented by Lieut. E. S. Gay, of th State Guard, Richmond. Having been mad for, and adapted to, light land, in which it ope rated perfectly, it was not guaged to as stiff soil as we cultivate; but it could easily b altered, and made to answer on such land. I was stronger than Emery's, which, valuable a we deem it, is yet *entirely too light.* Havin called the attention of the inventor to this de fect, and he having failed to remedy it, w shall try the effect of this public criticism.

Another very superior Corn Planter is mad by E. Whitman & Co., of Baltimore, and b Baldwin & Cardwell, of Richmond, as thei agents. The workmanship of Baldwin & Card well's is unexceptionable; that of E. Whit man & Co.'s, as far as we have seen, is not s good; so we prefer the former.

Still another implement of this class is mad by A. P. Routt, (Somerset P. O., Orange Co. Va.,) who took the first premium with it at th late exhibi ion of the Virginia State Agricultu ral Society.

A fifth, and very ingenious, Corn Planter has been invented, and, we believe, patented by a Mr. Whitehead, of Chesterfield, (Man chester P. O.) We have seen only the mode of this machine, but it seemed to be well con trived.

Supposing these and other implements o the same design capable of dropping the corn equally well, and of opening the ground fo the reception of the seed, there are two othe points involved, as to which the preferences o different parties must be consulted by them selves. These are the modes of distribution and of covering the corn. Gay's, Routt's an Whitehead's, as now made, drop the corn i hills; but they can be very easily made to dril it. Emery's and Whitman's either drill o drop it in hills. Gay's and Whitehead's cove the corn and leave the land over it ridged up and light. The others roll the dirt on the corn and pack it down. The season for bringing up corn last year was a bad one, and we found that on stiff land, whether richlow-grounds, o

thin uplands, that there was a vast difference in favour of rolling. We tried several acres in one place, with successive rows, planted in rotation, with Emery's Planter and the drill rolled, with Gay's and the drill ridged, by hoe covering, and by the cultivator or corn coverer. There was a very considerable difference in favour of the stand obtained from Emery's drill over any of the other modes. On the low-grounds, the difference between hoe-covering and Emery's, the only two plans there tried, was still more remarkable. On one piece of ground we tried them in alternate rows in a piece of very stiff and cloddy land, not reduced to a decent tilth, and we got a good stand with the Corn Planter, and a total failure with the hoe. Other gentlemen may have had an opposite experience, and of course should be guided by it. Some have told us, that had the season been wet, so that the rains would have packed the rolled drill,—especially if it had followed in a furrow previously opened by the plough,—that the corn would not have been half a stand. We can speak more distinctly on this point when such a condition of things has a chance to occur, as we mean to pursue the plan until it fails.

As to the other point—drilling or dropping in hills—gentlemen will in that, also, follow their experience and particular notions. We can imagine no reason for prefering the hill system except where it is necessary to work the land in checks, or both ways. Nine times in ten, perhaps oftener, that plan is wrong for the land, and of no benefit to the crop. It often interferes with proper drainage, and always compels an *instant* re-working of some part of the field, as it is obvious that the furrows first and last worked must be crossed at the same time. It is only necessary, as we conceive, where wire-grass, or some such indestructible pest, exists, and must be kept under. Where it is not necessary the drill system seems to us to be best. Dropping the corn at intervals of three or four inches, as near as may be, one grain in a place, will enable one to chop out to a stand with the hoe, and thus thin and work the corn at one operation. The work will be more expeditiously done than in thinning by hand, and the corn will have had, at the same time, the only working that can, as a general rule, be given to it with the hoe. This plan, too, if it takes more corn, yet obviates the necessity of replanting, as, though it may stand unequally, there will almost always be enough corn on the land; and it will hardly be disputed that the most unequal stand is better than a replanting.

It may be thought by some, who have never tried it, that the planter will not answer on cloddy land; but we speak both from observation and experience, when we say that it will put in the seed better on such land than it can be done by the hoe—not that it is unnecessary to pulverize for that, as for any other mode; but that in cases, as of late spring ploughing, when the clods cannot be reduced without more labour than can be applied, it is a preferable mode of planting. The clods are pushed aside by the opener of the drill; and the corn is covered with the dirt which is sifted down upon it.

Supposing the land to be prepared, two drills, with a horse each, will plant the corn faster than fifteen hands and six or eight horses can otherwise do it—and the balance of the force can be employed in hauling manure or preparing land for other purposes. We know very well a gentleman, not now a farmer, whose rule was to manure his tobacco land while he planted his corn.

Most drills will sometimes skip, generally from choking, and it will be well to examine them occasionally, to see that the openings, through which the corn falls, are not clogged. Whitehead's drills, by an ingenious contrivance—a spring that scrapes out, at each revolution of the plate, the openings through which the corn falls—seem to be exempt from this objection.

If guano is used with the corn it should be dropped in a furrow deeply opened, and with the dirt thrown back upon it by listing, the list to be harrowed. This is a beautiful preparation for the corn, and mixes the guano well with the soil. If any long or strawy manure is to be used in the drill, that, in the same way, may be easily and profitably buried out of the reach of the drill.

FARMERS' MEETING AT THE EXCHANGE HOTEL.

On the evening of the day that the Executive Committee of the Virginia State Agricultural Society held their last session, they determin-

ed, as an experiment, to invite such friends as they might fall in with, to unite with them in an informal meeting for agricultural discussion. The experiment succeeded beyond their most sanguine expectation, and an hour was passed in very pleasant and profitable conversation.—Knowing from the character of the gentlemen who were present, and the nature of the topics to be treated, that something worth recording would be evolved, we made an effort to report the proceedings, but, from the conversational style of the discussion, and the frequency of and number of questions asked each collocutor, we failed almost entirely, except in gathering a few leading facts. These, in a somewhat disjointed way, we now proceed to give.

We shall only premise that each gentleman was called on by the President of the Society, Mr. E. Ruffin.

Grazing with a view to improvement of Land for Wheat. Mr. Ro. Douthat of Charles City County.—Cultivates his land, a fine clay loam on James River, on the four course rotation of clover, wheat, corn, wheat, followed, of course, by clover again. His fields contains, each, about 110 to 120 acres. He grazes upon the clover, forty cattle, fifty sheep and twenty mules. Makes fine crops. Chemists contend that land is injured by removing vegetable matter; but under his systen he had doubled his crop of wheat in one rotation, commencing in 1848. On a portion of his land, which formerly blew away with the March winds, he had made, in 1852, 42¼ bushels per acre.—Limes extensively, and once in each rotation, but not as heavily as at first. His whole tract had been limed by his grandfather, the late Mr. Fielding Lewis. Uses the New York or North River lime, but thinks it very impure. Cannot tell its value as compared with oyster shell lime. Most farmers on the river repeat the liming periodically. His neighbour, Mr. Selden, of Westover, also grazes as closely as possible; grazes all the time; says he will make no wheat if he doesn't; certainly makes fine crops under that system; turns his cattle on as soon as they can get a bite of clover. Mr. Taylor, of Breno, who, as did Mr. Selden, took the Society's honorary testimonial as one of the twelve best farmers in Virginia, is also a close grazer. But he manures every foot of his land in the rotation, making the manure entirely from the resources of the farm, and applies it altogether to clover. Mr. Douthat has never used guano; some of his neighbors have. He thinks their crops of clover and grass are lessened in consequence; but the last two seasons have been very dry. Some of his neighbours, on stiff land, have the five field system; it would make his land too foul, especially in wire grass.

Mr. Dulaney of Loudoun. Thinks it better to cut off clover than to graze it. His father once made an experiment, and found the land from which the clover had been cut to yield 20 per cent. more wheat than that which had been grazed. Mr. Nesbit, an eminent English chemist, thinks it better to cut off two crops than to graze one, because the cattle nipping off the budding leaf would prevent the development of that much root, whereas in cutting off the full grown stalk and leaf, the root has had time to develope in the land, and so increase the nutriment in the soil. But the best farmers in Clarke would not graze their clover. When, on looking at a fine field belonging to one of them last summer, he had observed that "that clover would graze forty head of cattle," the reply of the proprietor was, "I would as soon have forty devils on it."

Mr. Douthat. Mr. Fielding Lewis was of the opinion of Mr. Dulaney's father; and he carried it so far that rather than graze his clover, or leave it on the land, he would have it cut on shares.

Mr. Lewis E. Harvie of Amelia. For sixteen years did not graze at all. The land under that system was much more productive in corn, and oats, and tobacco; less so in wheat. Of late, grazes extensively, and makes more wheat. He and his friends have used guano extensively. The wheat crop may have been increased by it, but not in a compensating ratio. The clover and other grass crops are less.

Tobacco and Lime above Tidewater. Mr. Vincent Witcher of Pittsylvania. As far as lime had been tried in his region it had no effect whatever. He once, years ago, had a bulk of slaked lime of some 18 or 20 bushels scattered on an area of some 40 feet diameter (an immense quantity per acre.) It produced no effect whatever, good or bad; and has produced none to this day. Mr. Peter Hairston, of North Carolina, had tried lime; and he had never

seen any effect from it. The lands in his region were naturally good. He knew a field well, which is reported to have been cropped in grain without manure every year since the revolution; and it will now produce from ten to fifteen bushels. He doubts the comparative profit of the wheat crop in his country. But they make as fine tobacco as any lands in the world. On his way to Richmond he travelled with a planter from North Carolina, Caswell county, who was going to Lynchburg to receive the money for the tobacco sold by himself and two brothers. He had sold at $35¼ per cwt.; his brothers at $35 per cwt. each; and the manufacturers said it sold for half its value. It had been grown on thin land worth now $25 per acre in consequence of the enhanced price of tobacco; but a few years ago it would not have brought more than $10 to $12 per acre. It was mainly manured with guano at the rate of 200 lbs. per acre. When they had exceeded this amount the quality depreciated; and where 400 lbs. were used, the tobacco was the worse, being of a looser and coarser texture. The brothers made little other crop, and cultivated 12,000 hills to the hand; at 4000 hills to the acre; and 5 or 6 plants to the pound, the sales would amount to $700 to the hand! But this tobacco was well made: the family were thought the best curers of the article in their country; and the price obtained was above the average expected. But a plenty of it will sell at $25 per cwt.

The lands in Henry county, Va., were better than those in Caswell. They were more like the Albemarle land. The Caswell lands were grey. In Southern Pittsylvania, where the finer quality of manufacturing tobacco was made, the lands were also grey. The largest crop of tobacco per hand he had ever known was 3,500 lbs. But the plantation was very fine and productive, and every hand was an able bodied man.

Col. Knight, of Nottoway. Had seen no effect from lime in his county. Experiments made by himself and others have satisfied him that it is perfectly valueless in that region. His land, the subject of one experiment, was a chocolate loam on big Nottoway river, but the lands of that region are generally grey But on neither grey nor chocolate lands had lime, though several times tried as an experiment, both directly and incidentally, (as in the case of lime used in building, where particular spots received a dressing of it,) been found to be of any effect except in one solitary case. Compost of lime and fence-corner scrapings, and other like things, had produced some effect, but how much was due in those cases to the lime, and how much to the other ingredients of the compost, could not be told. The exception was a piece of pipe-clay land, which was stiff and very bare. There it might have altered the mechanical texture. The same thing was true of plaster, which had produced a very slight effect on a neighbour's grey land, but had shewn none on his or elsewhere. In 1850, he had experimented with various quantities of from three pecks to three bushels, but had seen no benefit. On these lands, when put in moderate condition, clover grows finely.

In Prince Edward County, where a great deal of tobacco was made, the average per hand is from 8,000 to 10,000 hills. Every one over twelve years old, or that could plough, was counted a hand; and in worming and suckering tobacco, such lads were very effective.

F. G. R. Last year, on a visit to a gentleman of Prince Edward, ascertained that he cultivated, with fifteen hands, 200,000 tobacco hills, 100 acres in wheat, 60 acres in oats and 50 acres in corn. The tobacco, the only crop he saw, was uncommonly clear of worms and clear of grass; and the hands were a very likely set.

Mr. Harvie, (in reply to question.) Had heard that Col. Cocke, of Powhatan, had planted his whole crop of tobacco, last year, with plants on land not burned. It was not necessary to burn land for plants. If you will select a proper site, where a very thick bed of leaves has kept the grass from growing, and apply guano at the rate of 1000 lbs. per acre, you will get plants. His brother had tried the plan successfully. But the plants will grow rapidly from so much guano, and should be sown rather late. He uses the garden engine, as recommended by Mr. Sterling E. Edmunds in a late No. of the Planter. Likes the plan.

Mr. W. G. Crenshaw, of Richmond, had a letter from Mr. ——, of Powhatan, who, with 1000 lbs. of guano per acre, had raised plants from a bed prepared in April without burning.

F. G. R. Mr. N. B. Gay, of Fluvanna, had

raised plants on land not burned, with guano applied at the rate of 1800 lbs. per acre. Had much trouble in weeding, but not more than the labour of burning would have amounted to. Had made fine plants himself with guano applied at that rate in solution with water, thrown on at different times. Plants very fine, but rather forward.

Mr. McGruder, of Albemarle. Had coultered a plant-bed with the best effect.

Mr. Witcher. Had a neighbour who burned his plant-bed on a wheat-stubble, ploughed under and then covered with corn-stalks. He made as good plants as ever he saw grow. One year he had, himself, tended a crop of tobacco on new ground. The crop was very forward and was cut early. The seed of the suckers ripened, and after the land was ploughed they came up, making the whole land one plant-bed. He drew a great many plants from around the stumps and planted his crop with them, and it made as good tobacco as ever he saw in his life. He has heard from sources that commanded credit, that the sprouts on cabbage stalks would, if drawn from the stalks and planted, make good cabbages. He knew, experimentally, that this was true of the sprouts on tobacco stalks. He had frequently drawn suckers from stalks that had survived the winter, and planted them among his other hills. If there was any difference he had never found it out.

Tobacco that was too large for the land would not mature well. The quality was inferior. The best tobacco was always a little undersized for the quality of the land.

A great deal of the tobacco made in Henry and parts of Pittsylvania, would sell readily at $15 per cwt. without prizing. Many planters had no prizing machinery. Their rule was to plant early and prime high, so as to let each leaf get the sun. Tobacco inspected in Richmond sells better than that inspected at Petersburg or other points—at least much of that does which is bought to fill foreign orders. The reason is that the old "tobacco notes" required the tobacco to be "James River sweet scented Oronoko tobacco," and the foreign trade still adheres to that standard that compels a Richmond inspection.

Corn with Peas. Mr. Segar, of Hampton. Had known lands cultivated annually, for ten years, in corn with peas sown among it at the last working. The land became better and better.

De Burg's Superphospate. Mr. Segar. Had made accurate experiments with the above fertilizer for three successive years, and had found it totally worthless.

Mr. Dulaney. Had made an experiment with De Burg on corn. The superiority of the corn on the land to which it was applied had induced several of his neighbours to order considerable quantities of it. He had thus innocently misled them; for none of them had been repaid.

The meeting then adjourned; and the executive committee determined that at each meetting they hold, they will devote a night to discussions such as had just terminated.

VALLEY AGRICULTURAL SOCIETY.

Winchester, March 2.

We have a very flourishing agricultural society in this Valley, and last fall our exhibition was very successful; but it is evident you considered us *small potatoes* by permitting the notice of our success to devolve upon the Albany *Cultivator*.

It is our opinion that "small potatoes" will not grow in the Valley of Virginia: at least we "have travelled that country all over" from Harper's Ferry to Lexington, touching at many intermediate parts, and we never heard of "small potatoes" in all our route, or routes—for we have performed the feat in several directions. If they have them then, they consume them all in the family, as an old grocer friend of ours did his rancid butter; or, what is more likely, for they are not niggards, they give them to the hogs. But even then they have something more substantial, and live, to judge from appearances, a good deal better than those that were herded by the prodigal son. We doubt indeed, if in any one year there are "small potatoes" enough in the Valley to fatten a pen of twenty hogs.

We have failed to notice the exhibition of the Fair of the Valley Agricultural Society because we did not see any account of it in the papers, and because no friend gave us a private account of it. No doubt it was in the papers, as it should have been; but we assure our friend that we cannot keep up with the papers; as a general rule we cannot do more than accomplish such reading of books and papers

pertaining exclusively to our profession, as will enable us to make out a respectable journal. Many valuable items there are in our various exchanges, which we cannot take the time to look for. We tried it once, and found so much else to interest and attract us, that we were invariably led away from our main business.

If our friend will do us the favor to keep us advised of the condition and progress of The Valley Agricultural Society, we will take great pleasure in laying it before the public. And generally, we will esteem it a particular favour if our friends in all quarters will call our attention to what they wish noticed.

"SORGHO SUCRE. HOW TO MAKE SUGAR."

A friend, who is "in" for some sugar from the Chinese Sugar Cane, but does not wish to get all the good of the speculation to himself send us the following from the *National Intelligencer* in regard to a Chinese Sugar Cane mill. If the hopes of the many who have undertaken to raise a crop of the cane be only half realized, we suppose we must say to Louisiana, as Juliet did Romeo: "*Sweet*, good night!"—But for the present we judge it prudent to reserve the salutation.

The introduction of this article into our country has called for an exercise of our mechanical talent to bring forward something to meet the experimenting demand for new sugar mills. In passing through the Institute Fair my attention was attracted to a singularly constructed revolving machine running upon three rollers; but, upon close examination, I found it to be a Chinese sugar cane mill, invented by Mr. Hedges of Cincinnati, Ohio, who has been so successful in improving the famous little giant corn-mill, and has so lately invented a most complete agricultural steam-boiler, one of which is also in operation at the fair. This sugar mill is certainly of a most novel construction. It consists of three vertical cast iron rollers, supported between strong cast plates, resting upon a triangular wood frame about eight feet on its sides. Under each corner is a large truck wheel so adjusted when working as to revolve in a circle, the shaft of one of the rollers occupying the centre of the frame and clutched fast to a timber below, preventing its turning, while the other two, being geared into it at the top, are made to revolve around it as the whole frame is turned by the horse. On one corner is a feed table, from which a man feeds the cane, which, having been acted upon by the two rollers, passes out upon a table on the other corner, which is removed as often as a sufficient quantity accumulates. The juice passes down through the bed-plate and is received in a vessel made for that purpose. In a few minutes the truck wheels can be changed and the clutch removed, and the whole is ready to travel.—There being no heavy beams to raise, posts to set, or over-head sweeps to provide, and at the same time so easily transported from place to place, it will prove to be just the thing needed by our farmers at this particular time, and from the cheapness of the article it must meet with ready sale. All interested in this line are advised to give it an examination. *.

FAILURE TO CREDIT EXTRACTS.

Dr. Dadd, the very civil editor of the Boston *Veterinary Journal* calls our attention to the fact that two articles in the Jan'y No. of the Planter which belong to his paper appear as original—not "editorial"—in ours. We thank him for noticing it, and will endeavour not to offend again in the same way. If we should, however, repeat the offence, we will very cheerfully make the amende when our attention is called to it. The articles alluded to are, one, p. 20, entitled "Random Thoughts on the Feet of Horses and Shoeing," another, p. 47, "Big Head." Both are excellent, and much better than anything of the kind that we can originate.

Will Dr. Dadd be so good as to publish a good article on rheumatism, general or local, in the horse. Our patient is recovering, and we would like to report his case if we could do so creditably or intelligibly.

BEARDLESS BARLEY.

Mr. J. W. Briggs, of West Macedon, Wayne county, New York, will send to any one, who will send him a postage stamp and a *legible* address, a head of the above barley by return mail, with printed instructions for cultivating in a way to insure a large return from a small quantity of seed. The head will contain from 30 to 60 grains. A package containing three hundred grains securely enveloped, with a few heads to prove the fact that it is beardless barley, will be sent by mail, post paid, for twenty five cents. It is a very great object to get a good variety of beardless barley. It is a better and more productive grain than oats, and probably suits our climate better; and the objection to making it with us is its enormous beards. As there is no speculation in this offer, we feel no hesitation in giving it publicity.

IMPROVEMENT TO MORRISON'S REAPER.

Mr. Robt. J. Morrison, the inventor of the Reaper and Mower, to which the premium was awarded at the last State Agricultural Fair, has recently received several patents for improvements, which will greatly facilitate the management of his machine, and render it more durable. His Reaper now adapts *itself* to inequalities of surface, and readily passes water-furrows without the aid of the operator. By a very simple contrivance, the frame is thrown upon a spring which saves the machine from that vibratory motion which loosens the bolts.

NEW BOOKS.

In the "American Poulterer's Companion," by Mr. C. N. Bement, of Albany, New York, and sent us by Harrold & Murray, Booksellers, Broad street, we have a book beautifully gotten up; and which is really, what it professes to be, a *practical* treatise on poultry. We have long felt the want of such a book, and are happy to find one so well suited to enlighten us on the practical details of the art of poultry raising.

If Mr. Bement's experience will induce our good people to abandon the present miserable system of keeping fowls of any age, size or description, without regard to their availability; in any manner suggested by the wisdom of the old daddy or aunty, to whose tender mercies they are intrusted; he will well deserve the thanks of all lovers of good living, and save some housewives from annual disappointment. The farmer, too, will be less stingy in meeting out the food for an establishment which furnishes the eggs he now buys, and the fowls which make him a good dinner without encroaching on his cherished flocks and herds, than for the support of a set of antiquated hens and dilapidated chicken-cocks; who furnish nothing but trespassers on the garden, and an amount of vexation and annoyanee to all parties, which must be experienced to be properly appreciated.

The Illustrated Annual Register of Rural Affairs and Cultivator Almanac for 1857.

Messrs. Luther Tucker & Son, of Albany, have sent us a copy of the above valuable Register and Almanac. It is illustrated with one hundred and fifty engravings of houses, implements, animals, fruits, &c., and has a number of receipts and suggestions, &c. Price, 25 cts.

VIRGINIA STATE AGRICULTURAL SOCIETY.

The Executive Committee of the above Society at its meeting in February, adopted the resolution to hold stated meetings on the last Tuesday in the months of January, April and July, and on the Friday before the last Tuesday in October annually.

Such was the interesting and instructive character of the agricultural discussion held at the conclusion of the regular business of the Committee on the occasion of its last meeting, that it was determined that like discussions shall be hereafter held at the close of each of the stated meetings of the Committee, and that suitable efforts will be made to secure as far as convenient and practicable the attendance and participation of such intelligent and practical farmers in these discussions as will render the report of them a means of general instruction to their agricultural brethren.

CHAS. B. WILLIAMS, *Sec'y.*

OSAGE ORANGE HEDGES.

To the Editor of the Southern Planter:

I did not see your article on Osage Orange Hedges, until the March number of the Planter was in print, when the February number which contains it, accidentally fell into my hands.

Having for some time past carefully propagated the Osage Orange, and from a sincere conviction of its great value as a hedge plant, endeavored to bring it into general use,—allow me space for some few remarks in reference to your editorial.

I have the plants for sale, as you know, but have no apprehension that your readers will impute interested motives to me on that account. Where suitable stone for fencing is abundant, that should be used in preference to any other material; but generally, in Virginia, where dead wood enclosures prevail, my own observation and experience have satisfied me, that the Osage Orange hedge is far preferable to them —and that the original planting of a hedge, is little if any more expensive than a strong rail fence,—that there is no more risk of the failure of good plants, set with ordinary care, than of so many grains of corn planted for a crop; and that the subsequent culture, including trimming, is scarcely more expensive than keeping up a wood fence of any kind, especially if its durability be taken into account. And furthermore, if the hedge be properly trimmed, say to not more than four or five feet high by twelve to eighteen inches thick, I have never yet perceived that it interferes with crops of any kind, or is a material draft upon the land. Such a hedge is impassable by stock or thieves.

You say you have some little personal experience, and cannot recommend it. What

may be the amount and character of this experience, is not known to me; but my own has been of seven or eight years duration, and I can and do recommend it to all who will do justice to themselves and the plant, when they undertake to cultivate it, but to none others.

As regards the Cherokee rose which you seem to prefer, I have that and the Microphylla, a hardier variety of the same species, both of which were killed down to the ground in the winter of 1855–56; but not a twig of the Osage Orange, so far as I could find, was injured. It did, however, put up again from the roots. This rose, I believe, is a native of India, as you have said, and not of the U. S. It will unquestionably make a beautiful, but not, I think, a sufficient enclosure for farms in this climate.

It has now been nine or ten years since I first saw the Osage Orange hedge in Pennsylvania, and impressed with its value and beauty as an enclosure, endeavored to introduce it here. The first plants sent to me nearly all failed, being quite too old. Subsequently, through the kindness of a friend, I obtained supplies of good seed, with instructions for propagating; and from the time the plants were large enough to set, so long as my circumstances permitted, I have been endeavoring not only to enclose with it entirely myself, but to bring it into notice and general use. I one year continued the planting until the first week in May, without the loss of three plants in one hundred. For the few past years, necessity has compelled me to sell all my plants, and put it out of my power either to continue my own enclosures but to a very limited extent, or to give the attention I could wish to what is already set. Still, I have no gaps. Wherever good plants fail, and gaps consequently occur, it is from want of proper care in planting, and subsequent culture. The plant is wonderfully tenacious of life, unless it be too old, in which case the disruption of its powerful top root tends to destroy it. Plants of a year old are, according to my experience, the best.

Failures, however, there have been, and the cause is so well accounted for in a letter which I received from a gentleman in Ohio, of the highest respectability, and great experience, that I will use the liberty of giving you an extract from it. The whole is at your service if desired:—

"It is most unfortunate that so few of those who have planted hedges, have grown them with anything like proper care, (culture and trimming.) Consequently a majority of the so-called hedges, are a burlesque on the name. Hence such articles appear as that of the Boston Cultivator and Southern Planter; and hence, too, a reaction has taken place in Ohio and further west, so that there is little demand for seeds or plants in comparison with former years. And yet it is capable of demonstration, that the Osage Orange will make a *perfect hedge*, if properly managed—is, in fact, the very best of all hedge plants; and I have no doubt will eventually become the common material for fencing, in most parts of the country."

Respectfully your ob't s't,

WM. H. RICHARSON.

—

Gen. Richardson, as will be seen above, thinks we have done the Osage Orange injustice as a hedge plant, in an account we gave of it, substantially extracted from the Boston Cultivator, at p. 71, of Feb. No. of this paper. We now give an extract from a letter of J. and W. Sigenor, of St. Louis county, Missouri, which we find in an account of the proceeding of a Hedge Convention, held in Illinois. The Valley Farmer, from which we take the extract, has a full account of the convention and its proceedings. It seemed to be generally admitted that the Osage Orange would make a fence there; and the conditions of success are briefly and forcibly stated in Messrs. Sigenor's letter:

"It is eight years since we set the first hedge on our farm. We have now nine miles of line fence; most of it was turned out at the age of three years, bnt some not till four years old. Our knowledge was very limited when we first commenced with it. We have managed some of it rather carelessly. We are satisfied from our experience now, that a large part of the hedges set in the States of Illinois, Indiana, and Ohio, where we have been, will prove worthless, for reasons to be inferred from rules of our own, which we never withhold from any who ask for them. And here they are: 1st. *In the first place, the ground should be plowed twenty inches deep and ten feet wide.* 2d. Great care should be taken in selecting the plants, to have them all of equal thrift and of uniform size, that they may grow all alike. 3d. They must be set in deep and firm, and never nearer together than fifteen inches, and in single row. 4th. *Deep plowing and regular and constant cultivation, sufficient to keep the ground clean,* and promote the most rapid growth, must be attended to. 5th. Well established roots of two full years' growth should be formed before a knife of any kind is put to them; then cut to the ground clean. The next year cut to within six inches; the next a foot high; the next two and a half feet; the next three and a half feet, and the fence is perfect. [Six or seven years for a perfect fence!—ED. S. P.]

"We have made our best hedge by cutting back to the ground after it was four years old. We have another mile which does not please us as it is, and shall cut it also the same way this winter."

Add to these that the lands in which this plant is used are very rich, and are so bare of timber, that a dead fence of any kind is very expensive; that they are visited every winter by as severe gales as "the wind-swept Oreades," whose effect will be greatly mitigated by hedges of any kind; and the reader will thus be enabled to judge for himself, how far it will meet his views of economy, shelter, and taste to have a hedge. Professor Turner promises a letter on the same subject for the next number of the Valley Farmer.

By the way, the rose we spoke of as being suitable, in our opinion, to answer some of the purposes of a hedge, has been killed down to the roots by the cold of the past winter.

For the Southern Planter.

MR. EDITOR:—I have intended for some time to address you an article of no little interest to the citizens of Richmond, and of vital importance to many of the most substantial farmers of this State, and more particularly to the valley and mountain region.

I allude to the cattle trade of our State, many of which are sold in Richmond; and could the trade of your place be so regulated that sales of beef cattle would be more uniform, I doubt not many of our fine cattle, which are now driven to Baltimore, would be disposed of in your market. As the matter now stands, a few of our prominent graziers are well paid, while the mass of smaller dealers, if they happen to meet a tight market, are literally skinned.

My object in writing, is not to point out a remedy, but simply to call the attention of cattle dealers and graziers to the subject. Let them call a convention, to meet say, at the next Agricultural Fair, in Richmond, where the matter can be discussed, and such steps taken as will remedy some of the evils under which we now labor.

You have ample capital in your city to establish packing houses; and why should beef not be as cheaply packed in Richmond as elsewhere? This would have a tendency to keep a more open market, and, as a consequence, more uniform prices. As matters now stand, one or two hundred beeves will glut your market, and the grazier must either lay over a week or two, and feed his cattle at a heavy expense, or sell at a loss.

The charges for selling and weighing cattle are, I think, too high; one hundred head of cattle can be weighed in an hour; the charge is $30, if they average 1000 lbs. The Weigh-master has nothing to do but adjust his scale, and sing out, "Lot No. 1,—10 beeves,—10,000 pounds," and note the same in his book. Occasionally a certificate of weight is called for, if the parties are not all present. With regard to the charge for selling cattle, I will here append a bill, *verbatim*, (omiting the name of Agent,) of my own experience during the last winter.

I will premise by saying, I met a tight market; I waited on the Agent, who informed me I must remain in the country four days before coming to market. I did so; drove in my cattle the day appointed, not one of which were sold. The Agent directed me to drive back in the country, and hold on for further orders. The first part of the injunction I obeyed; but as I had been paying $15 to $20 daily expense, I concluded to try and sell myself. Brought in half my lot the next day and sold them; next day sold half of what remained. Met the Agent on the street; told him what I had been doing. He appeared pleased; said he felt interested for me, and thought he could help me out, if I would bring in another lot. I did so; the Agent got a butcher to top them. Said he had an order from Hampton for eight, but took nine at $7 nett. Nothing said about money; I expected it, of course. The bill will show how much I got, and how very disinterested this Agent was. I will not give the name of this man, but I gave him to understand, very plainly, that he was done selling cattle for me:

HENRY B. JONES, ESQ.

Nine Cattle.

9 at $3 50; weighed 9270 lbs.		$324 45
Weighing,	$2 78	
Feeding,	1 12	
Expenses to Hampton,	5 00	
Guarantee,	3 24	
Commission,	9 00	$21 14
		$303 31
Cash,	$3 31	
Acceptance 30 days,	100 00	
Acceptance 60 days,	200 00	
		$303 31

Richmond, Va., Dec. 19th, 1856.

Now, my dear sirs, the charge of one dollar per head commission and weighing, is well enough, but if I sell for cash I do not need guarentee, expense in feed, &c. Indeed, after getting this Agent's acceptance, if I go to the Bank for the money, I must first endorse the check before I can draw it; thus guaranteeing again; and if the other parties fail, I am finally bound to refund. At least, I so view the matter.

I am told you have many wealthy and highly respectable men in the cattle trade at Richmond. They should take a stand to build up the beef market. Many of our best cattle now pass on to Baltimore, which should go to Richmond—and *would* go there, if the proper inducements were held out. I hope the butchers, as well as the graziers, will come to understand their interests better. I am but a small dealer, but trust some one will take

hold of this subject that will treat it as it deserves. H. B. Jones.

[N. B.—I find out on my lot of sixty-four beeves, some $200 for feed in eight or nine days, which would have been a fair profit, could I have sold promptly.

I see Messrs Crawford & Robertson, of Augusta county, have lately located at Bacon Quarter; and I hope, as there is now respectable opposition in the trade, that the graziers and cattle dealers will get on better. H. B. J.]

Albemarle, March 10th, 1857.

To the Editor of the Southern Planter.

Dear Sir:—The last Nos. of the Planter contain several curious, and interesting articles upon the subject of the Oat crop; and an intimation from the Editors that they would like to have the experience of others upon that subject for publication. I am consequently induced to give mine.

I have been a cultivator of oats in a limited way for half a century, and have been thoroughly satisfied of their tendency to exhaust lands, until very recently: and, although your late publications upon the subject have produced some doubt, they have not *satisfied* me of the error of my preconceived opinions. Now for my practice and observation in regard to the oat crop.

It was once my practice to sow a portion of the field intended for wheat fallow, in oats, in the month of February, (the best time for a good crop if the land is in order,) to facilitate the summer fallowing for wheat; this I persisted in, until it became evident that the oat fallow produced less wheat tho' on land equally as good, if not better, than the contiguous portion of the field. 'Tis true the oat crop deprived the wheat of a growth of clover, so desirable in a summer fallow: but Messrs. Editors, I am very reluctant to recognise exceptions to the general rule; *that all spring crops* or such as mature the following summer; and root superficially, are, (other things being equal) more exhausting than crops which require a longer time to mature, and consequently derive more from the fractifying and fertilizing qualities of the atmosphere. And here I quote John Taylor of Caroline as authority, and notwithstanding the progress made in agriculture since the publication of his "Arrator," he should be admitted as high authority.

I have never cultivated the oat crop with the expectation of making sale of it in any form whatever. For feeding horses, to some extent I regard it as very valuable—for horses or oxen not kept at hard labor, it may supercede the use of other grain, after passing the sheaves through the cutting box; and the grain, mixed with corn in the proportion of two to one of corn, ground fine, I consider the best food I ever gave stock of any kind; not only sufficiently nutritious, but the corn acting as an astringent, the laxative quality of the oats is corrected, and the animal is preserved in good health. This mixture should be stirred in double its bulk of chaff or cut straw, and *never wetted*. As much foddering or straw (not oat-straw) as you please for distension. Excuse the digression. It is my habit to avoid a recurrence to things, which if *not* incidental, may, without interuption to the reader, be noticed as we go along. If lands will bear a repetition of the oat crop, annually for a series of years without deterioration, (and we have in the Planter authority for it not to be disregarded,) for hogs alone, I should not hesitate to make the experiment, and will set about it this spring by sowing 12 to 15 acres, to be annually resowed, for their benefit. By the way, the practice of gleaning stubble fields with hogs, I have long considered the most expensive way of feeding them where clover and other grasses are intended to follow the grain crop. The injury done to the young grasses, to say nothing of the filling up of ditches, furrows &c., more than balances the benefit to the hogs. In my experiment, the straw will not be removed from the land, and the result reported for five or six years if I live as long, or by another at my request. If it succeeds, I consider it the most economical mode of preparing hogs for the fattening pen. "Three score and Ten."

For the Southern Planter.

TO PUT A HEAVY LOG ON A WAGON WITHOUT TAKING OFF ITS WHEELS.

Place a piece of timber, from four to eight inches in diameter, parallel with the wheels, and as near them as possible, one end resting on the front, and the other end on the hind axle of the wagon. Then place two strong skids, the one with its butt passing through the spokes of the force, and the other through those of the hind wheel, and resting on the piece of timber which has been placed lengthwise in the wagon.

Roll the log up on the skids until it is stopped by the wheels; support it in this position while one or two hands raise its front end with a strong hand-stick, just enough to allow the front skids to be taken out, and placed between the fore and hind wheels, under the log, or supporting it as near its centre of gravity as possible. The butt of this skid will, of course, rest on the piece of timber placed lengthwise in the wagon.) Then some of the hands, by bearing down on the front end of the log, can easily raise the hind end above the hind wheel, while the other hands can push it over and let it down gently upon the hind axle of the wagon. All hands, then, together can, without difficulty, raise the front end of the log over over the four wheel or into the wagon.

This plan was "conjured up," by Tom, "*because he was in a hurry*, when I had sent him and *a few other hands* to put a *large stock* upon the wagon late one evening." T. A. N.

Pr. Edward Co., March 14, 1857.

EMPEROR:

IMPORTED AND OWNED BY WM. C. RIVES, ESQ., CASTLE-HILL, VIRGINIA.

EMPEROR is of a breed of horses, *Cleveland Bays*, which have been celebrated in England for their su perior elegance and usefulness for more than a century past, and, of late years, have been much improved by cultivation and careful breeding. He was bought in 1852, when a year old, by Mr. Rives from the French government, which had imported both sire and dam from England for the improvement of the native stock of horses in France. The amelioration of the race of horses in that country being a branch of the public administration, no expense or pains are spared in obtaining from other countries, and especially from Great Britain, the very best specimens of the best breeds for crossing upon their own stock. The sire and the dam of Emperor were selected with great care in England through the personal services and judgment of the French Inspector-General of Agriculture, being both *pure* Clevelands of the improved breed, as their pedigrees attest, and were placed at the National Haras of Versailles, where Emperor was foaled the 15th day of March 1851.

He is, therefore, now just six years of age. He is a deep rich bay, with black legs, and no white except a small natural spot where the saddle mark usually appears, standing about sixteen and a half hands high, distinguished by great symmetry of form and grandeur of appearance, splendid action as well as immense

power, and perfect docility of temper. He has received three first prizes, in different classes, from the Virginia State Agricultural Society; and at the last Annual Fair of the Society, though as yet but imperfectly trained, beat with great ease, in a contest of speed in harness, all the horses that were matched against him, and among them two Northern horses that had acquired much reputation as fast trotters.

The accompanying engraving is from an elaborate and excellent portrait of Emperor, executed in oil by an eminent artist. It presents at once to the eye of the experienced judge in the slanting shoulder, high withers, deep capacious chest, powerful arm and knee, muscular loins and quarter, length of lever between the hip and hock, and the perfect form and position of the latter, together with the clean, sinewy, bony limbs and well-proportioned feet, a combination of points which make him, of necessity, *a great goer;* and it is confidentl y believed that there is no horse of his size and age in America that can compete with him in trotting speed, or the squareness and ease, as well as rapidity, of his movement.—The rotundity of his figure, as represented in the engraving, is the result of natural structure—particularly in the ribbing of his barrel, and of his muscular development, and not of condition, for he was in reduced working order when his portrait was taken. The compact shape of his back shows that he is master of any weight, while his tapering arched neck, and light, lean and lofty head, impart to him superior style and a commanding air. His fine constitution keeps him at all times in perfect health, and gives him a faculty of endurance as remarkable as his speed.

His colts have attracted great admiration; and their uniform and marked resemblance to himself and to one another, exemplified strikingly in their invariable bay color, whatever be that of the dam, proves that he possesses, in a superior degree, the power of transmitting his qualities to his offspring—the natural and well-understood result of the unmixed purity of his blood, and of the antiquity of his race. The great desideratum in the improvement of our American breeds of Horses, so as to qualify them alike for elegant and useful purposes, is to unite strength with action, power with speed, endurance with spirit, efficient service with fine form and appearance; and it is believed that no means of supplying this desideratum has yet been offered to the country of so practical a character, and such certain success, as the employment of a horse of the qualities, strain and race of the one described.

The following extracts of a letter from M. de Ste. Marie, Inspector-General of agriculture in France, respecting the sire and dam of Emperor, with the official statement of his Pedigree under the authority of the Department of Agriculture and Commerce, are annexed as interesting and authentic vouchers:

"PARIS, May 14, 1852.

"I bought *Cleveland*, sire of your colt, from Mr. J. Shaw, residing at Acomb Hall, near York. He was then four year sold, and warranted *pure* Cleveland. Mr. Shaw is one of the greatest dealers in horses for the stud in Yorkshire, particularly coaching horses. It was he that sold me *Rubens*, whom you saw at Versailles, the first prize of the Royal Agricultural Society of England."

"I purchased *Georgette*, dam of your colt, from Mr. George Burton, who resides at Water-Fulford, also in the neighborhood at York. She was winner of a first prize at the Show at Naburn in 1848, and had at her side, when I bought her in Sept'r 1849, a colt 6 months old, for which the owner asked one hundred guineas. Mr. George Burton is brother and neighbor of Mr. William Burton, a celebrated breeder of fine horses living in the environs of York, owner of *Rimphon*, and of whom I bought *Caligula*, one of the stallions at Versailles.

"I sincerely hope the colt you have bought of us will succeed in your hands. He will, I am sure, receive from you the care and attention of which he is worthy.

"His sire has been exercised in harness at Versailles for two years. He has perfect action. His temper is docile. He never tires, and no weight discourages him.

"(Signed,)

"L'Inspecteur-Général de l'Agriculture,

"LEFEBVRE DE SAINTE MARIE."

PEDIGREE.—"Emperor was got by *Cleveland* out of *Georgette*, both of the *pure* Cleveland stock. *Cleveland* was by *Master George*, dam by *Barnaby—Georgette* by *Alexander*, dam by *Golden Hero*. *Georgette* is the mother of several stallions sold in England at very high prices."

The colt she had at her side, at the time of her purchase by M. de Ste. Marie in September 1849, was afterwards bought by the Spanish Government.

ALBEMARLE Co., VA., March 1857.

DISTILLATION OF THE BEET.

We see it stated in our last English papers, that over $10,000,000 in value of beet-root spirits were distilled in France the last year, while the amount in 1853, was only $100,000—thus showing the entire success of the business. This success has induced the excise commissioners of England, to establish an experimental beet-root distillery, which is now in operation in Farningham in Kent, and which promises to equal the expectations which have been excited in regard to it.

Horticultural Department.

E. G. EGGELING, Contributor.

DWARF PEARS AND OTHER PEARS.

The indifference manifested towards raising pears in Virginia, seems surprising to one who knows the attention and care bestowed upon this fruit, in some sections of this country, and in other lands. While men in England and France devote their lives to the rearing of the best pears, and while in some of the States of this country they form a staple product of the orchard, in this State they are the least cared for of all fruits. That it does not arise from any undervaluation of the fruit itself we are well assured, as no man that has tasted a choice pear could fail to rank it among the best gifts of ever bountiful Nature. The true secret is disclosed in an answer which is often given when we ask a farmer if he would like to have a pear tree: "Why should I buy and plant pears, when I shall be dead long before the trees bear. No, no, I want something that will give me some reward for my labour during my own life." And so the good man goes his way, with apples, peaches, and cherries, and will have nothing to do with pears.

It is, perhaps, unfashionable to talk of planting for posterity, in these days when we travel by steam and talk with lightning; but we would put in a plea for those who are to come after us, and ask the farmers, whether they do not owe it to their children, and children's children, to devote some little attention to the cultivation of some of the choicest varieties of our six or seven hundred pears? Will they be held in less grateful remembrance by their successors, should they leave an orchard of this delicious fruit, to be gathered by other hands, when their's are cold in the grave? Is it nothing worth to them, that it will be said or sung in coming days,

> "'Twas my forefather's hand
> That placed it near his cot."

as the golden fruitage is plucked from the bending boughs? Surely the man of generous soul and noble impulses will find in such considerations an incentive to plant for "unborn generations," however the mere utilitarian may despise and scorn them.

The culture of the pear may, however, challenge the attention even of such as merely plant to make money, and who care nothing for the comfort of their children. They are no longer compelled to wait a lifetime for fruit from the pear-tree. A process has been discovered, and is now largely followed in France, England and in many parts of this country, by which pear trees are brought to bear much sooner, their productiveness much increased, and the quality of the fruit not affected or greatly improved. All these desirable and astonishing results are accomplished by grafting, or budding, the pear upon the quince stock. That the pear can be thus cultivated, and that the cultivation is attended with many advantages, is now well known to all fruit-growers in the country.

The effect of grafting or budding the pear upon the quince, is to dwarf or stunt the tree, and hence trees raised by this process are called Dwarf Pears. The quince, as all know, is of much smaller growth than the pear, has shorter roots, feeds less upon the elements composing the soil, and so furnishes less sap than the pear stock, as any individual may ascertain for himself by reversing the experiment and grafting the quince upon the pear, which will give a prodigious growth of wood and foliage, but no fruit, or no fruit for a long time. So effectually does this process dwarf the pear, that while it is not uncommon to find pears which were grafted or budded on pear-stocks attaining a height of thirty or forty feet, the ultimatim to which the pear on the quince attains, is from sixteen to twenty feet.

It is this dwarfing or stunting the pear which causes it to produce fruit so quickly, that to one not familiar with the facts, it seems nothing short of marvellous. For instance, there is in the grounds of the writer a dwarf pear not twenty inches high, with eight or ten fruit buds upon it, and every probability that it will bear three or four pears this season, weighing, in the aggregate, thirty or forty ounces. A dwarf pear will bear in two years, and in four or five years will bear quite abundantly, which ought to satisfy the desires of the most impatient, and certainly contrasts very strikingly with the growth and product of pears grafted or budded on pears. This effect of stunting or

dwarfing the pear tree, in order to get fruit, is no novelty with our farmers, though the particular method to which we have alluded is. They practised it long ago in the case of vigorous, thrifty trees, which, year after year, added limb to limb and branch to branch, but produced nothing save leaves. By partially girdling the tree, leaving a narrow strip of bark, the growth was stopped and it became fruitful. Or, as we have seen done, by girdling partially a single limb, that limb would become fruitful while all the others continued barren; and as the girdling cut off to some extent the supply of sap, and caused the tree or limb to bear, precisely so is the result of grafting upon a quince. *In case* any of our readers have a pear tree which will not produce fruit, and are inclined to try the experiment of partially girdling it to make it fruitful, we advise them to *perform the operation in the month of May*, but must remind them not to girdle it entirely, as that will kill the tree.

The Dwarf Pear, in the face of the most determined opposition, has gradually won its way into public favour, and nothing is needed to make it a great favorite but a proper knowledge of its merits. It has been denounced as a humbug, upon very slender grounds, by persons who have been the victims of the mistakes, ignorance, or carelessness of others. It is not every pear that will do well when budded upon the quince, nor every quince that will answer as a stock upon which the pear may be budded, and it is the failure to know or observe these facts, which has led to nearly all the failures in this country to raise dwarf pears. Nurserymen tried to bud any pear on any of our ordinary quinces, and were as much surprised as others at their constant failures, until they discovered that in France only the quince, known as the *Angeirs*, was used for this purpose. That has been imported and is now used exclusively, and we hear no longer of failures in the effort to raise dwarf pears, except where persons are experimenting with some variety of the pear, which will not grow on the quince stock. Experience, too, has corrected the other error into which nurserymen rushed, of attempting to raise every pear on the quince. That has been found to be impracticable, but still a choice selection has been tried with eminent success. The following is a list of the pears, which the writer knows from his own observation and experience, thrive well when grafted or budded on the quince stock: Louise Bonne de Jersey, Vicar of Winkfield, Duchess de Angeloume, Glout Morceau, Passe Colmar, Urbaniste, Bartlett, Buerre Diel, Easter Beurre, Flemish Beauty, Doyenne Blanc, and Winter Nelis. There are doubtless many others, which will hereafter be added to the list, but these twelve will give us a pear season, beginning with the Bartlett, in the month of August and continuing until the month of March. This is, perhaps, all that could be desired.

The failures which have occurred, and which have done so much to discredit the dwarf pear, are not wholly attributable to the mistakes of the nurserymen. The farmers, themselves, have been wrong. They, in some instances, forgot that the quince was only the root and no part of the pear tree, and in planting left the quince stock above the earth. This is a fatal error. The pear tree grows off vigourously and in a short time exceeds in size the quince stock; then hide-bound succeeds and consequent barrenness, when the astute farmer curses dwarf pears as a swindle and humbug; whereas the fault was not in the tree, but in the mode of planting. Now let it be remembered, that to succeed with dwarf pears, these conditions must be observed. The soil in which it is planted must be very rich and loamy, and where it is sandy it should be well mixed with clay. To ensure its being rich enough, work in with it a good supply of old, well-rotted stable manure; and where that cannot be had, woods earth in sufficient quantity. Dig the hole deep enough to bury the tree up to its junction with the pear, and even burying the pear-wood two or three inches. The roots of the quince are small, and if the tree is put into the hole and the earth tumbled in without care, the roots will all be pressed together and matted so that they grow off slowly. To prevent that, shovel in a little earth and place the roots upon it, and then, as the hole is filled, continue to spread out the roots upon the layers of soil until all the roots are covered, which will ensure the roots their natural position, and then fill up with earth

until the entire quince stock is buried as directed. This is all important to the welfare of the tree; and whenever these directions are implicitly followed in planting, either of the twelve pears before specified, we can guarantee success as certain and infallible.

The Dwarf Pear requires only such cultivation as ought to be given to every fruit tree, though, like all other trees, the more attention it receives the better will it repay attention. The trees are the better for stirring the soil, with a fork or spade, to the depth of a few inches as asparagus beds are worked, taking care, however, not to go so deep as to cut or otherwise injure the roots. This is very simple and is all the work they require, except what is bestowed on training; concerning which a few words. There is a grevious error in this respect practised hereabouts, which needs correction. Better no training at all than injudicious training, and such is all that which cuts away all the lower limbs of the trees, especially pear trees. The other day we saw an orchard of fine thrifty pear trees utterly ruined by the trimming off of every fruit-bearing limb and branch, and leaving only the water shoots, which were the only parts which should have been touched. The trees would have done better had they been left alone to grow as they listed, without the trainer's art to aid their development. The proper method for training the dwarf pear, is that which will give it a pyramidical form, as brought about by what is known in France as Quenonille training. The process is very simple, though rather difficult to explain without the aid of illustrative cuts which we are unable to obtain. The pear, budded on the quince, grows perpendicularly, the first year, twenty inches to four feet, which, according to the training we would describe, must be cut away one half. At the point where the cut was made lateral branches will soon develope themselves, and form the future fruit-bearing branches of the tree. Another year the perpendicular growth is about the same or greater, which is to be again cut off, when other lateral branches show themselves at the point where the second cut was made, and thus the process continues until the tree attains a height of six or eight feet. The first steps in this process are begun in the nursery, where a depraved public opinion does not force the nurseryman to let the water-shoots remain uncut, as we know is sometimes the case. For instance, we were told at Sinclair's Nursery, in Baltimore, the other day, that they could not train their pears as they wished because the farmers will have tall trees, a folly that is wholly inexcusable. This training will develope limbs and branches near the earth; and then to complete the tree in the form desired, the lateral branches are to be cut from time to time, so that the bottom of the tree will spread out like the base of a pyramid, gradually sloping up to the topmost branch, like the sides of a pyramid. This cutting of the lateral branches will bring out fruit-bearing twigs, or branches, upon the main limbs, close to the body of the tree, where a better support can be obtained for the large, heavy fruit produced, a most important and desirable consummation, make the tree compact and strong, and materially aid in hastening its productiveness, and tend to improve the character, quality and quantity of the fruit, while the tree is far more ornamental than those naked bare trunks which deform and disgrace Virginia orchards and gardens.

One of the advantages of having dwarf pear trees thus trained, is the facility with which a large number may be planted in a small space. A distance of six feet, from tree to tree, is ample with these trees, whereas the ordinary pear cannot be planted closer than twenty to thirty feet, and then they shade the land so that it cannot be tilled; whereas, between dwarf pears, by having the soil rich, you secure an excellent spot for lettuce and some other vegetables. The size of the tree commends it for the garden, a square of which may well be spared to this object, and there they would secure the attention of the mistress of the farm and be preserved from all those accidents to which trees are liable in the orchard.

That the dwarf pear, under these conditions, will be more productive and consequently more profitable, seems to us scarcely to admit of a question. Each tree will yield, at maturity, from two to four bushels of fruit, and when the number of trees which may be put in an acre of ground is considered, the product is seen to be prodigious.

The only well-founded objection to the dwarf pear, which we have seen, is that the budding or grafting on the quince lessens the longevity of the tree. This is probably correct. It is highly probable that the dwarf pear will not endure for centuries, as we know that the pear grafted or budded on the pear does. But the dwarf pear is not so short-lived as some suppose. Robert Buist, of Philadelphia, one of the oldest and most successful men in the country, writes from France, "I was much interested to know the age of the oldest pear tree that was on the quince stock, and was gratified to be shown a lot reputed to be ONE HUNDRED YEARS OLD. I, therefore, noted it down that the quince stock did not impair the longevity of the pear." Other evidence to the same effect might be adduced, but this will suffice to convince every one that dwarf pears attain a good old age, even though the longevity of the pear be somewhat shortened by the quince stock.

A few words on the profits of dwarf pear cultivation, for the especial benefit of the utilitarians. That it is profitable, we might readily infer from the universality of its culture in France, England, and in the Northern States of this Union. Our Northern friends would have abandoned it long ago, had there been no money in it, and yet they go into it more and more every year. Why they do so, will be readily understood by any one who has visited the fruit stores of New York, or Philadelphia, and seen the pears, weighing from ten to eighteen ounces, selling at prices ranging from fifty cents to two dollars a piece. Some idea of the profits of this culture may be gleaned from the fact that Mr. Rivers, the celebrated English cultivator, has two thousand five hundred trees of one variety, and one thousand five hundred of another, which he cultivates exclusively for the London market. He has more than three hundred trees to the acre. There is in Virginia, it may be objected, no such market as New York or London, but we doubt if the objection is correct. Any of our cities or towns would furnish a market for the best pears; and the watering-places, for the summer varieties, would afford a market without a rival in the world.

In order to have pears keep well, they should be gathered before they are fully ripe. It improves the flavour, and they are much more likely to keep well when ripened in the house. To keep through the winter, pears should be gathered by the hand and then packed in boxes, or barrels, with thin layers of well-dried oat or wheat-straw between the fruit, and the boxes put away in a dry, moderately cool place. By pursuing this plan, Mr. Wilder, of Massachusetts, has preserved pears through the winter, and until April or May. At a future day, we shall devote an article specially to this topic of preserving fruits.

While we thus plead for the culture of the dwarf pear, we would not discourage the culture of the pear budded or grafted upon the pear stock. By all means let both be cultivated. The former for direct and immediate results, the latter for the future. The fruit of the former may be eaten by the generation now living, the other will be reaped by the generations to live hereafter. While we give due attention to the one let us not forget the other. Both are good, and if we have discoursed of one more than of the other, it is because it is less known to the people at large, and meets objections which have been made to the other. Another reason for writing so much about dwarf pears at this time, is that there are many orders in the hands of nurserymen here which could not be filled, but which will be supplied next fall, and we thought that these hints might prove serviceable to those who are entering upon this branch of production.

And, in addition, we hoped to arouse an unwonted interest in the culture of pears, because the climate and soil of Piedmont, of the Valley, and of many parts of Trans-Alleghany Virginia is admirably adapted to their culture. They will not succeed so well near the seashore, because there they are extremely liable to a disease known as the blight; which, as its name imports, is very fatal to the tree. In the other parts of the State, pears may be, and ought to be, successfully cultivated, and if our farmers will do what they can, our State will, in a few years, grow the finest pears in the country. So may it be.

SALT FOR ASPARAGUS.

Asparagus is very much improved by an application of salt as a top-dressing. The plant

feeds on it to a considerable extent, but what is perhaps the chief benefit, the saline particles mixing with the earth of the beds, keep it moist, a most important consummation. Old fish salt, which can be procured of almost any retail grocer, at a small cost, will answer for this purpose as well as any other, but it will pay well to buy coarse alum salt, where the other and cheaper cannot be procured. Any person can satisfy himself of the economy of this application by trying it.

CUTTING ASPARAGUS.

During the month of April, the Asparagus begins to come forward, and we take time by the forelock to give some hints concerning the proper mode of cutting. None should be cut from a plantation until it is three years old, and from those only the larger stalks.—In cutting from old plantations care must be taken not to cut too deep. In general the stalk should be cut off two or three inches above the crown of the root. Otherwise, it often happens that, the buds upon the crown of the root, which are to furnish the future supplies of stalks, are much injured, if not entirely destroyed.

MANGEL WURZEL AND SUGAR BEETS.

These beets are cultivated for cattle and not for table use. To be cultivated, to advantage, they must be put on very rich, light land, and if the farmer has not such land for them, he had better leave them alone altogether. If he has such land, then let him plant as early as convenient in April, in rows not less than two feet apart, so that they can be worked with the plough. When they come up and have grown to be six or eight inches high they require to be thinned, so as to stand about ten inches apart, or even more widely; and while thus thinning them, those that are removed can be used to supply vacancies, caused by the failure of seed to germinate. In some parts of the country these roots form a staple crop, and are highly valued as food for all kinds of cattle.

TRANSPLANTING CABBAGE.

Often when cabbage plants are removed from the beds where they were raised to the garden square, a large portion die, and in a few days the gardener must re-set the square with other plants, and this has occurred so frequently that most persons have concluded that it is inevitable. Many will doubt when we tell them that it is wholly their fault that every plant does not live. Yet such is the fact. It results from two errors which are easily avoided. One is that in drawing the plants the roots are broken and the other from keeping out of the ground too long, until it becomes more or less dry. The gardener instead of having the land prepared fully before he takes up the plant and going through the whole process of drawing and planting in a few minutes, often draws the plants, then lays off the ground, and then drops every plant where it is to be put, before he begins to set the first one, and by the time he gets to the last they are hopelessly injured. Sometimes, we have seen such instances, the plants are lying thus on the ground exposed to the heat of the sun for hours, before they are planted. If they grew afterwards it would be very wonderful.

The plan which we have pursued for many years seems to us to be far more reasonable, and certainly is much more successful than that usually followed in this region. We prepare the land thoroughly first of all, and then lay it off before a plant is drawn from the bed. Some hours before the plants are drawn, water is applied freely to the beds in which the plants are growing to soften the earth, so that the plants can be taken, without breaking the roots. The plants are then carefully drawn, and taken at once to the spots where they are to be planted. There meantime, a mud puddle has been made, by scraping away the soil, and pouring down water, and mixing soil therewith until a tolerably thick mud has been formed, into which the root of each plant is immersed. A considerable portion of mud will adhere to the root, and then as quickly as possible they are planted. The result of this mode of planting is, that a plant rarely ever fails to grow off at once and flourish vigorously, and unless the worms or insects attack the plants, we never have occasion to re-set cabbage plants.

WATCH THE WEEDS.

No gardener can hope to succeed very well in raising vegetables, who does not strive constantly to keep his plants clear of weeds. They

spring most luxuriantly in the rich soil of the garden, and where they are allowed to grow, soon get ahead of the vegetables, draw so largely upon the soil as to starve the useful plants and impede their growth. They are easily kept under and destroyed if attacked when they first appear, but when they have attained some age it is not so easy to get rid of them. Yet the alternative is no weeds and excellent vegetables, or weeds and puny, sickly vegetables, and between these the gardener must make his election. Which is to be preferred?

FARMER GRIPE AND THE FLOWERS.

Farmer Gripe does'nt like flowers, at least none but the blossoms in his orchards, the bloom on his cereals, and those of his cotton and tobacco. These are not flowers in his estimation, for all flowers are trash, worth nothing, intolerable nuisances, hateful excresences springing from the soil. Roses, violets, pinks, verbenas, geraniums, dahlias, lilies, tulips, bachelor's buttons, honeysuckles, jessamines, hyacinths, and the whole of Flora's treasures, Gripe would exterminate if he could, and leave nothing on the face of the earth but grasses, grains, fruit trees, and weeds which would suit for grazing, or serve to enrich the land. It worries him to hear of flowers, he wonders how people can be such fools as to spend so much time and money in their cultivation; and he has nearly made up his mind that he will have nothing more to do with the Planter, if it publishes any more nonsense on this topic. It is wasting space which could be filled with useful reading, Gripe thinks, and then it makes his wife and daughters worry him for a hand to work a flower-garden. Now anything else he could bear. If they wanted to raise gourds, or pumpkins, or potatoes, he could grant their petition, but 'tis too much for human nature to bear, that they should be talking of having a flower-garden. Gripe thinks so, and acted very rudely about the matter when it was pleasantly hinted to him, terrifying his poor wife, and shocking his fair daughters. Such anger is rarely seen without the walls of a mad-house; and after scolding for half an hour Gripe stalked away out of the house, and as he passed on to his cornfield, trod down the butter-cups, bruised the daises, beat off with his walkingstick some dogwood blossoms which hung near the path, and inwardly cursed all the beautiful and fragrant blossoms which God has scattered over the face of the earth. Ah! Gripe, thy heart is far from the good and right way, when thou art thus envious of the sweet-smelling blossoms!

Flowers have their uses Gripe, whatever thou thinkest of them, for the good Father hath made nothing in vain, hath created naught that thou mayest despise. There was a time when thy soul was purer than now, when the flowers were fair and pleasant in thy sight, and when thou lovedst to look upon their bright hues and inhale the grateful fragrance which they cast upon the passing winds. Thou art changed, though the flowers remain the same, and to thy conscience comes the question, whether thou hast changed for the better. It were better for thee that thou hadst not ceased to love the flowers, rather than to have grown cold and selfish, and mercenary as thou art now. It were better for thee oftener to hold communion with the flowers, that thy thoughts might the oftener be lifted from earth and fixed on heaven, where grow the flowers that never wither. These gentle monitors would teach thee many a lesson, which thou shouldst have learned long ago, of the heavenly Father, of thy dependence, and of the transitoriness of all earth-born things, and of the nobler part of thy nature, which is famishing while thou art busy with growing crops and getting gain. Go out among the flowers Gripe, and think of the innocent days of thy youth, when all bright and fair forms of earth were sources of pleasure, and trace the changes that have passed over thy spirit, and perchance thou wilt return to thy home a wiser and a better man. Go out among the flowers.

HOW TO PLANT FLOWERS.

It is the practice of many persons who cultivate flowers, to plant together in the same bed, a variety of plants producing dissimilar blossoms. Where this is done, with a studious regard to the contrasts of colour, a very fine effect may be produced, if the plants be not too much crowded. This is rarely the object, persons for the most parts giving into this arrangement solely to economise space. That is desirable in towns and cities perhaps, where ground is scarce and worth large sums of money. It ought not to have much weight with persons

living on farms, and it is for such that we cater chiefly. Such we earnestly advise to put each variety in a distinct and separate bed, roses in one, verbenas in another, pinks in another, violets in another, and so on with all the rest, instead of planting all promiscuously in one bed where neither has a fair chance of exhibiting its beauties. What can be more beautiful than a bed of scarlet verbena? What more enchanting than a bed of meek-eyed, fragrant violets? What more gorgeous than a bed of rich hued roses? What charms the senses more than a bed of mignoinette? And how much is the beauty of each variety enhanced and its attractiveness increased by this mode of cultivation? It is the only method which will afford the highest enjoyment which can be derived from the culture of flowers, and sure we are that no person who tries this plan will ever consent to follow the other. However, if the other must be pursued, let there be some care taken to arrange the plants so that the best effects may be produced from contrasts of colour. Ladies know how important this is in dress, and we can assure them that it is not less important in the arrangement of their flower beds.

ANNUALS, BIANNUALS AND PERENNIALS.

The month of April is the proper time for sowing all annual, biannual and perennial flower seed. These terms embrace a very large and very well known class of plants, such as China Asters, Mignoinette, Larkspur, Venus Looking Glass, and others too numerous for mention. Many of these varieties sow themselves, by which we mean the plant scatters its seed in the soil without human intervention. Whenever this is the case, it is advisable to give these seeds thus sown by the plants sufficient time to germinate, as they produce much better flowers than those obtained from the seed store, or saved by the gardener. Persons often destroy these by spading up the flower plat too early. Mignoinette has to be resown always, as the seeds are tender and rarely survive the extreme cold of the winter, and it is so delightful that no person who pretends to cultivate flowers at all, should be without it.

CHRYSANTHEMUMS.

Every other year the Chrysanthemums should be taken up and divided into small pieces, and then re-planted. They do not thrive well when this is neglected. They are gross-feeders and should be planted in an extremely rich soil. April is the month for planting them.

DAHLIAS.

This beautiful class of plants has always been a favorite and well deserves its repute, and ought to be planted part now for early flowers, and others later in the year for late flowers.—By a little judicious management they can be kept blooming throughout a considerable part of the year.

Some persons fail to raise dahlias for want of a little information as to the mode of dividing them. Attached to the root, or more properly to the bottom of the stalk, are tubers like those of the potato. Sometimes ignorant persons cut off these tubers and plant them, and are surprised that they do not grow. The error lies here; the tubers it will be observed, are joined to the stalk by a *neck*, much smaller than the tubers. It is that neck which produces the plant and not the tubers. Now in dividing for planting, the neck may be cut into as many peices as there are sprouts upon it, and wherever a peice with a sprout attached is properly planted, a dahlia will be produced. The dahlia kept in a moderately warm place, will sprout just as the potato does, and when this sprouting has taken place there can be no difficulty in dividing them as we have directed.

VERBENAS.

Of all the summer flowering plants these are perhaps the most grateful. They are pretty, and some have a most delicious odour. There are, in all, about twenty species, all of which flourish in the open air. They are, however, too well known to need description. They should be planted in April. They flourish well in a light, loamy soil, and there is nothing more delightful than a bed of verbenas in full bloom.

MULTUM IN PARVO.

Evergreens, roses, and box edging may be planted after the 1st of April, and towards the last of the month, Tube Roses and Geraniums. Lawns ought to be rolled and borders frequently worked with the hoe or fork, taking care, however, not to injure or disturb any bulbous roots or flower seeds.

SCHEDULE OF PREMIUMS,

AND

RULES AND REGULATIONS,

FOR THE

FIFTH ANNUAL EXHIBITION

OF THE

VA. STATE AGRICULTURAL SOCIETY.

TO BE HELD AT RICHMOND

ON THE

27th, 28th, 29th and 30th October, 1857.

PREMIUMS.

BRANCH I.

Premiums of First Grade of Experiments.

1 to 5. For each of five best experiments on any important and doubtful or disputed question or questions of practical Agriculture; each experiment to include a series of not less than eight different matters of trial, observation, measurement or correct estimate or comparison of results, and each experiment to cover not less than four acres of land; and moreover, by its proper direction, accuracy of performance and the careful and full report of procedure and results thereof, shall serve to furnish valuable instruction for practice on the subject investigated, to which it relates, whether two or more experiments shall be on the same one, or each, on a different subject, a premium of $100

Second Grade.

6 to 15. For each of ten other next best experiments, of similar character and merit with the above described, but falling short of the full requisitions for the foregoing, a premium of . . . 25

Third Grade.

16 to 35. For each of twenty other accurate and instructive experiments or series of experiments, on one general subject, of merit and useful value, a premium of 10

SUBJECTS FOR EXPERIMENTS SUGGESTED.

While it is by no means intended to limit the range of selection to the subjects here enumerated, it has, nevertheless, been thought proper to suggest them, as of practical importance, and worthy to be tested by careful experiments.

COMPARATIVE EXPERIMENTS OF THE SECOND GRADE.

1. *In Feeding Cattle*—Showing the comparative cost of fattening in the open air, and in sheltered stalls, on ground and unground, cooked, and uncooked food.

2. *In Feeding Sheep*—Showing the comparative cost of fattening at large or in confinement, under like conditions as above.

3. *In Feeding Hogs*—Showing the comparative cost of fattening under like conditions as above.

4. *In Manuring Wheat*—Showing the relative effect of ammonia and the phosphates, and a combination of both kinds of manure.

5. *In Feeding Farm Horses.*—The best and most economical mode of feeding farm horses. The cost to be stated.

6. *In Draining Land.*—The best experiment on thorough draining of not less than two acres of land, with or without tile—the approximate cost and the improvement compared with similar adjacent undrained land to be stated.

7. *In Drilling and Broad-Casting Wheat.*—The best experiment, having particular reference to superiority of product, economy of seed and less liability to "heave" in winter.

8. *Selecting Seed Corn.*—For the best experiments in selecting seed corn, with a view to increase the number of ears—showing the effect of such increase on the *weight* of the corn, and its capacity, if any, to increase the amount of corn grown on a given quantity of land. For instance, can ordinary up-land be made to grow a good three-eared stalk on the same area that produced a good one-eared stalk?

EXPERIMENTS OF THE THIRD GRADE.

9. *Manuring Corn.*—For the best experiments in applying manure to corn, showing the kind, quantity, and cost of manure, and the mode of its application.

10. *Level and Ridge Culture of Corn.*—For the best comparative experiment, showing which is the most economical and profitable mode of cultivation.

11. *Corn Culture in Dills and in Checks.*—For the best comparative experiment, showing which is the most economical and profitable mode of cultivation.

12. *The Proportion of Shucks per barrel of Corn.*—The best experiment to ascertain the proportion which shucks and corn reciprocally bear to each other.

13. *On Continuous Cropping.*—For the best experiment on the continuous cropping of the same field in Indian corn.

14. For the best experiment on the continuous cropping of the same field in wheat.

15. For the best experiment on the continuous cropping of the same field in oats.

16. *Application of Phosphate of Lime.*—For the best experiment applied to clover and peas.

17. *Application of Ammonia.*—For the best experiment applied to clover and peas.

18. *Combined Application of Ammonia and Phosphate of Lime.*—For the best experiment of the application of these, in certain definite proportions, to clover and peas.

19. *Yield of Flour from Wheat.*—For the best experiment to show what ought to be the proportion of flour yielded by a given quantity of wheat.

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Remarks and Special Rules for Branch I.

The superiority of merit or value of any two experiments, claiming the same or like premiums, will be decided in reference to the nearest approximation to the following conditions:

1st. The comparative extent and completeness of the processes of experiment, and the apparent accuracy of the procedure.

2nd. The clearness of the report.

3rd. The utility of the information so conveyed.

Exact measurements of results always will add much value to reports of experiments, and should not be omitted whenever the case may require such exactness. But in many other cases, estimates of comparative results, or products, by the eye, may serve, if sufficient for the case and for reaching correct conclusions.

BRANCH II.

First Grade.

Premiums for Written Communications.

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36 to 40. For each of the five best essays or written communications, whether on the same or on different subjects of practical agriculture, or on scientific agriculture, strictly and usefully applicable to practice, of high order of merit and utility for instruction—and conforming to the requisitions of the general rules on this subject, a premium of . . $50

Second Grade.

41 to 50. For each of ten of other and next best essays or written communications as above described, but which may fall short of the requisitions for the higher offers, a premium of . . . 20

Third Grade.

51 to 70. For each of other twenty next best instructive written communications of new facts in agriculture, a premium of 10

71. For the best treatise on gardening, suited to the climate of Virginia, to be not less than one hundred pages, 25

72. Best treatise on the culture and management of Broom Corn, . . 10

Remarks on, and Special Rules for, Branch II.

ESSAYS AND OTHER WRITTEN COMMUNICATIONS.

1. Essays and other written articles on practical subjects, must be founded mainly, and on scientific subjects, at least partly, on the writer's practical experience and personal observation or investigation; though portions of each may rest on other authorities, to be stated particularly or generally, as required by the case.

2. The award of superiority to any one writing over others on the same subject, will be made in reference to its probable greater utility to agricultural improvement or profit, as well as to the ability with which the subject is treated.

3. In matter designed to instruct or to guide practical labors, clearness and fullness of details will be deemed a high claim to merit—and next conciseness. Nothing necessary for instruction should be omitted, and nothing included that can be omitted without injury to the value of the instruction.

4. Written Communications to the Executive Committee may be sent in at any time—the earlier the better—as they will at once be referred to the Committee on Essays, who will thus be enabled to scrutinize, and the more correctly to estimate by comparison, the relative merits of the different Essays submitted for their examination.

5. It is required that all written communications to the Society, received at any previous time and published by order of the Executive Committee, and which have not been duly considered, and denied premiums by the judges, shall be still held and considered as claiming, and in competition with any more recent writings for premiums offered, and for which any such writings may be suitable, and further, even the previously published writings, which had been duly considered by the judges at the preceding Fair, and to which premiums were denied, shall still be held under review and consideration, by the judges for the next year's premiums, not to again be placed in competition, but for the purpose of being compared as to degrees of merit with the later writings then under consideration and adjudication for premiums.

6. When a premium has been awarded at a previous time to an essay, any other and later essay, or written communication on that subject, to obtain a premium, must be either deemed to have important additional value compared to the former one so honored, or otherwise be very different in matter, or manner of treatment, as well as of a sufficiently high order of merit.

7. All written communications to which may be awarded premiums, will be published in the Transactions of the Society. And any other offered to compete for premiums, and not obtaining that honor, will be published in like

manner, if deemed worthy by the Executive Committee.

BRANCH III.

BEST CROPS OF DIFFERENT FARMS.

For the best product averaged per acre, of each of the following crops grown in 1856, or 1857.

☞*If raised on ten acres of land in a body,* the annexed premiums.

73. Indian corn, low-grounds, $50
74. do., high-land, 50
75. Wheat, 50
76. Tobacco, 50
77. Cotton, 30
78. Oats, 30
79. Field peas, 30
80. Rye, 30
81. Barley, 30
82. Timothy, herds-grass, or other hay of artificial grass or clover, 30

☞*If raised on five acres of land in a body,* the annexed premiums.

83. Clover seed, weighing 60 lbs. to the bushel, $20
84. Timothy seed, weighing 46 lbs. to the bushel, 20
85. Orchard-grass seed, weighing 14 lbs. to the bushel, 20
86. Sweet potatoes, 30
87. Buckwheat, 20
88. Irish potatoes, if raised on 2 acres of land in a body, 20
89. Turnips, if raised on 2 acres of land in a body, 20
90. Pumpkins, if raised on 1 acre of land in a body, 10
91. Ground peas, if raised on 1 acre of land in a body, 10

For the best sample of unprized tobacco, of the growth of 1857, not less than 5 pounds, the annexed premiums.

92. For the best English shipping, $20
93. For the second best do., 10
94. For the best Continental shipping, 20
95. For the second best do., 10
96. For the best fine bright manufacturing wrapper, 20
97. For the best fine sweet chewing, 20

The samples must be forwarded to the Secretary's office, at least one week before the first day of the Fair, that they may be classified and arranged for exhibition and the decision of the judges, by Messrs. Barksdale & Read, N. M. Martin & Co., Harris & Gibson, and Deane & Hobson, the committee appointed for that purpose, who will place each sample in its appropriate class, and the premiums will be awarded by the judges as the test of quality and management when the tobacco is stripped.

The Society will procure and exhibit, carefully prized samples ordered, handled and prized, for each market. The Society designs to indicate to the planter, by the classification of all samples, the particular market to which his tobacco properly belongs; and by the prized samples, to show good order and neat management in prizing for that market.

Crops offered as largest products must have their amounts fixed with sufficient accuracy to enable the judges to decide upon their merits. The testimony will be the best that the nature of the case may admit, and such as will be satisfactory to the judges.

BRANCH IV.

HORSES.

Thorough Bred.—1st Class.

☞Awards to be made without regard to performance on the turf, and the Judges are required to reject any animal competing in this division, with which there is not furnished a complete pedigree, shewing the purity of blood on the side of both dam and sire.

98. For the best thorough bred stallion, $50 00
99. For the second best, 30 00
100. For the third best, CERTIFICATE OF MERIT.
101. For the best thorough bred mare, 20 00
102. For the second best, 10 00
103. For the third best, CERTIFICATE OF MERIT.
104. For the best entire colt foaled since 1st January, 1854, 10 00
105. For the best entire colt foaled since 1st January, 1855, 10 00
106. For the best entire colt foaled since January, 1856, 7 50
107. For the best filly foaled since 1st January, 1854, 10 00
108. For the best filley foaled since 1st January, 1855, 10 00
109. For the best filly foaled since 1st January, 1856, 7 50
110. For the best foal dropped since 1st January, 1857, 5 00

☞No premium to be given in the foregoing class to an animal that is unsound.

The Horse of General Utility.—2nd Class.

111. For the best stallion for useful and elegant purposes combined, $40 00
112. For the second best, 20 00
113. For the third best, CERTIFICATE OF MERIT.
114. For the best brood mare for useful and elegant purposes combined, 20 00
115. For the second best, 10 00
116. For the third best, CERTIFICATE OF MERIT.
117. For the best entire colt foaled since 1st January, 1854, 10 00
118. For the best entire colt foaled since 1st January, 1855, 10 00
119. For the best entire colt foaled since 1st January, 1856, 7 50

120. For the best filly foaled since 1st January, 1854, 10 00
121. For the best filly foaled since 1st January, 1855, 10 00
122. For the best filly foaled since 1st January, 1856, 7 50
123. For the best foal dropped since 1st January, 1857, 5 00
124. For the best pair of matched horses, 25 00
125. For the second best pair of matched horses, 10 00
126. For the best single harness horse, mare or gelding, 15 00
127. For the second best, 10 00

☞No premium to be given in the foregoing class to an animal that is unsound.

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Quick Draught Horses —3rd Class.

128. For the best stallion for quick draught, $40 00
129. For the second best, 20 00
130. For the third best,
CERTIFICATE OF MERIT.
131. For the best brood mare for quick draught, 20 00
132. For the second best, 10 00
133. For the third best,
CERTIFICATE OF MERIT.
134. For the best entire colt foaled since 1st January, 1854, 10 00
135. For the best entire colt foaled since 1st January, 1855, 10 00
136. For the best entire colt foaled since 1st January, 1856, 7 50
137. For the best filly foaled since 1st January, 1854, 10 00
138. For the best filly foaled since 1st January, 1855, 10 00
139. For the best filly foaled since 1st January, 1856, 7 50
140. For the best foal dropped since 1st January, 1857, 5 00
141. For the best pair of matched horses for quick draught, 25 00
142. For the second best, 10 00
143. For the best single harness horse, mare or gelding, 15 00
144. For the second best, 10 00

Mares and geldings that have been run in a regular race cannot compete for the above premiums.

☞No premium to be given, in the foregoing class, to an animal that is unsound.

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Heavy Draught Horses.—4th Class.

145. For the best stallion for heavy draught, $40 00
146. For the second best, 20 00
147. For the third best.
CERTIFICATE OF MERIT.
148. For the best brood mare for heavy draught, 20 00
149. For the second best, 10 00
150. For the third best,
CERTIFICATE OF MERIT.
151. For the best entire colt foaled since 1st January 1854, 10 00
152. For the best entire colt foaled since 1st January, 1855, 10 00
153. For the best entire colt foaled since 1st January, 1856, 7 50
154. For the best filly foaled since 1st January, 1854, 10 00
155. For the best filly foaled since 1st January, 1855, 10 00
156. For the best filly foaled since 1st January, 1856, 7 50
157. For the best foal dropped since 1st January, 1857, 5 00
158. For the best pair heavy draught horses, 20 00
159. For the best team of heavy draught horses, not less than four, 30 00

[To be tested on the Fair Grounds according to such plan as may be prescribed by the Judges.]

☞No premium to be given, in the foregoing class, to an animal that is unsound.

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Saddle Horses.—5th Class.

160. For the best stallion for the saddle, $40 00
161. For the second best, 20 00
162. For the third best,
CERTIFICATE OF MERIT.
163. For the best brood mare for the saddle, 20 00
164. For the second best, 10 00
165. For the third best,
CERTIFICATE OF MERIT.
166. For the best entire colt foaled since 1st January, 1854, 10 00
167. For the best entire colt foaled since 1st January, 1855, 10 00
168. For the best entire colt foaled since 1st January, 1856, 7 50
169. For the best filly foaled since 1st January, 1854, 10 00
170. For the best filly foaled since 1st January, 1855, 10 00
171. For the best filly foaled since 1st Sanuary, 1856, 7 50
172. For the best foal dropped since 1st January, 1857, 5 00
173. For the best saddle horse, mare, or gelding, 20 00
174. For the second best saddle horse, mare, or gelding, 10 00

☞No premium to be given, in the foregoing class, to an animal that is unsound.

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MULES AND JACKS.—*6th Class.*

175. For the best jack, $40 00
176. For the second best, 20 00
177. For the best jennet, 20 00
178. For the second best, 10 00

179. For the best pair of mules, to be owned and worked one year preceding their exhibition, 15 00
180. For the best team of mules, 4 or more, to be owned and worked 1 year preceding their exhibition, 25 00
181. For the best mule colt, 3 years old, foaled in Virginia, 10 00
182. For the best mule colt, 2 years old, foaled in Virginia, 10 00
183. For the best mule colt, 1 year old, foaled in Virginia, 7 50
184. For the best mule colt, a suckling, foaled in Virginia, 5 00

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CATTLE.

Short Horns or Durhams, of Native Stock.

1st Class.

185. For the best bull, 3 years old and upwards, $30 00
186. For the second best, 15 00
187. For the third best,
CERTIFICATE OF MERIT.
188. For the best cow, 3 years old and upwards, 30 00
189. For the second best, 15 00
190. For the third best,
CERTIFICATE OF MERIT.
191. For the best bull between two and three years old, 20 00
192. For the second best, 10 00
193. For the third best,
CERTIFICATE OF MERIT.
194. For the best bull between one and two years old, 15 00
195. For the second best, 8 00
196. For the best heifer between two and three years old, 15 00
197. For the second best, 8 00
198. For the best heifer between one and two years old, 15 00
199. For the second best, 8 00

Herefords same premium as *Durhams*.

For the best *Imported Short Horns* and *Herefords*, same premiums as the above, but the *Imported* breeds shall compete only in their own class.

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Devons, of Native Stock.

2nd Class.

200. For the best bull, three years old and upwards, $30 00
201. For the second best, 15 00
202. For the third best,
CERTIFICATE OF MERIT.
203. For the best cow, three years old and upwards, 30 00
204. For the second best, 15 00
205. For the third best,
CERTIFICATE OF MERIT.
206. For the best bull, between two and three years old, 15 00
207. For the second best, 8 00
208. For the third best,
CERTIFICATE OF MERIT.
209. For the best bull, between one and two years old, 15 00
210. For the second best, 8 00
211. For the best heifer, between two and three years old, 15 00
212. For the second best, 8 00
213. For the best heifer, between one and two years old, 15 00
214. For the second best, 8 00

Alderneys same premium as *Devons*.

Best *Imported Devons* and *Alderneys*, same premiums as the above, but the *imported* breeds shall compete only in their own class.

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Ayshires, of Native Stock.

3rd Class.

215. For the best bull, three years old and upwards, $20 00
216. For the second best, 10 00
217. For the third best,
CERTIFICATE OF MERIT.
218. For the best cow, three years old and upwards, 20 00
219. For the second best, 10 00
220. For the third best,
CERTIFICATE OF MERIT.
221. For the best bull, between two and three years old, 10 00
222. For the second best, 8 00
223. For the third best,
CERTIFICATE OF MERIT.
224. For the best heifer, between two and three years old, 10 00
225. For the second best, 8 00

226. For the best bull, between one and two years old, 10 00
227. For the second best, 8 00
228. For the best heifer, between one and two years old, 10 00
229. For the second best, 8 00

Holsteins same premiums as *Ayrshires*.

For the best *Imported Ayrshires* and *Holsteins*, same premiums as the above, but the *Imported* breeds shall compete only with their own class.

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Grades.—4th Class.

230. For the best cow, three years old and upwards, 30 00
231. For the second best, 15 00
232. For the third best,
CERTIFICATE OF MERIT.
233. For the best heifer, between two and three years old, 10 00
234. For the second best, 5 00
235. For the third best,
CERTIFICATE OF MERIT.
236. For the best heifer, between one and two years old, 10 00

237. For the second best, 5 00
This class includes native stock or crosses of any of the foregoing breeds with the native stock.

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DAIRY COWS.

5th Class.

238. For the best cow for the dairy, $30 00
239. For the second best, 15 00

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Working Oxen.—6th Class.

240. For the best yoke of oxen over four years old, $30 00
241. For the second best, 15 00
242. For the best yoke of oxen under four years old, 30 00
243. For the second best, 15 00
The oxen to be tested according to rules to be prescribed by the Committee of Award.

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FAT STOCK.—CATTLE.

7th Class.

244. For the best pair aged fat steers, $40 00
245. For the second best pair, 25 00
246. For the best pair of fat steers, under four years old, 40 00
247. For the second best pair, 25 00
248. For the best fat cow, over four years old, 20 00
249. For the second best, 10 00
250. For the best fat heifer under four years old, 20 00
251. For the second best, 10 00
252. For the best single fat steer, 15 00
253. For the second best, 10 00
The owner will be required to state the mode of fattening in all cases.

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SHEEP AND SWINE.—*8th Class.*

254. For the best pen fat sheep, four or more, $15 00
255. For the best pen fat hogs, five or more, 10 00
256. For the best slaughtered mutton, fine wool, 5 00
357. For the best slaughtered mutton, middle wool, 5 00
558. For the best slaughtered mutton, long wool, 5 00

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SHEEP.

FINE WOOLS, OF NATIVE STOCK.

Saxons—1st Class.

259. For the best ram, 20 00
260. For the second best, 10 00
261. For the third best,
CERTIFICATE OF MERIT.
262. For the best pen of ewes, three in number, 20 00
263. For the second best, 10 00
264. For the third best,
CERTIFICATE OF MERIT.
265. For the best pen of ewe lambs, 4 in number, 10 00
266. For the best pen of ram lambs, 4 in number, 10 00

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Saxon Grades.—2nd Class.

267. For the best pen of ewes, three in number, 20 00
268. For the second best, 10 00
269. For the third best,
CERTIFICATE OF MERIT.
270. For the best pen of ewe lambs, four in number, 10 00

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Merinos.—3d Class.

271. For the best ram, 20 00
202. For the second best, 10 00
273. For the third best,
CERTIFICATE OF MERIT.
274. For the best pen of ewes, three in number, 20 00
275. For the second best, 10 00
276. For the third best,
CERTIFICATE OF MERIT.
277. For the best pen of ewe lambs, four in number, 10 00
278. For the best pen of ram lambs, four in number, 10 00

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Merino Grades.—4th Class.

279. For the best pen of ewes, three in number, 20 00
280. For the second best, 10 00
281. For the third best,
CERTIFICATE OF MERIT.
282. For the best pen of ewe lambs, four in number, 10 00
Grades are crosses of the above breeds on native stock.
Silesian Merinos same premiums as the above.

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MIDDLE WOOLS, OF NATIVE STOCK.

South Downs.—5th Class.

283. For the best ram, 20 00
284. For the second best, 10 00
285. For the third best,
CERTIFICATE OF MERIT.
286. For the best pen of ewes, three in number, 20 00
287. For the second best, 10 00
288. For the third best,
CERTIFICATE OF MERIT.
289. For the best pen of ewe lambs, four in number, 10 00
290. For the best pen of ram lambs, 4 in number, 10 00

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South Down Grades.—6th Class.

291. For the best pen of ewes, three in number, 20 00
292. For the second best, 10 00

293. For the third best,
CERTIFICATE OF MERIT.
294. For the best pen of ewe lambs, 4 in number, 10 00

Oxford Downs.—7th Class.

295. For the best ram, 20 00
296. For the second best, 10 00
297. For the third best,
CERTIFICATE OF MERIT.
298. For the best pen of ewes, three in number, 20 00
299. For the second best, 10 00
300. For the third best,
CERTIFICATE OF MERIT.
301. For the best pen ef ewe lambs, 4 in number, 10 00
302. For the best pen of ram lambs, four in number, 10 00

Oxford Down Grades.—8th Class.

303. For the best pen of ewes, three in number, 20 00
304. For the second best, 10 00
305. For the third best,
CERTIFICATE OF MERIT.
306. For the best pen of ewe lambs, 4 in number, 10 00

Dorset, Cheviot, Hampshire and *Shropshire Downs*, same premiums as Oxford Downs.

Grades, being crosses of these breeds upon native stock, same premiums as other Grades.

LONG WOOLS, OF NATIVE STOCK.

9th Class.

307. For the best ram, 20 00
308. For the second best, 10 00
309. For the third best,
CERTIFICATE OF MERIT.
310. For the best pen of ewes, three in number, 20 00
311. For the second best, 10 00
312. For the third best,
CERTIFICATE OF MERIT.
313. For the best pen of ram lambs, four in number, 10 00
314. For the best pen of ewe lambs, 4 in number, 10 00

☞ The long wooled breed includes Bakewell or Leicester, Cotswold or New Oxfordshire and Lincoln.

Long Wool Grades.—10th Class.

315. For the best pen of ewes, three in number, 20 00
316. For the second best, 10 00
317. For the third best,
CERTIFICATE OF MERIT.
318. For the best pen of ewe lambs, four in number, 10 00

This class of Grades comprises any of the crosses of the above long wools on native stock.

FOREIGN SHEEP.

11th Class.

319. For the best imported Saxon ram, 20 00
320. For the second best, 10 00
321. For the best imported Saxon ewe, 20 00
322. For the second best, 10 00
323. For the best imported Merino ram, 20 00
324. For the second best, 10 00
325. For the best imported Merino ewe, 20 00
326. For the second best, 10 00
327. For the best imported South down ram, 20 00
328. For the second best, 10 00
329. For the best imported Southdown ewe, 20 00
330. For the second best, 10 00
331. For the best imported Oxford down ram, 20 00
332. For the second best, 10 00
333. For the best imported Oxford down ewe, 20 00
334. For the second best, 10 00
335. For the best imported Bakewell or Leicester ram, 20 00
336. For the second best, 10 00
337. For the best imported Bakewell or Leicester ewe, 20 00
338. For the second best, 10 00
339. For the best imported Cotswold or New Oxfordshire ram, 20 00
340. For the second best, 10 00
341. For the best imported Cotswold or New Oxfordshire ewe, 20 00
342. For the second best, 10 00

Imported sheep not allowed to compete with natives.

☞ The Judges of awards on fine wools will also adjudge the premiums on imported Saxon and Merinos. The Judges on middle wools, the premiums on imported South Downs and Oxfords, and the Judges on long wools, the premiums on imported Bakewells and Cotswolds.

Cashmere Goats.—12th Class.

343. For the best pair Cashmere goats, male and female, 20 00
344. For the best pair, cross of Cashmere with native goat,
CERTIFICATE OF MERIT.

SWINE.

Large Breed.

345. For the best boar over two years old, 20 00
346. For the second best, 10 00
347. For the best boar one year old, 15 00
348. For the second best, 8 00
349. For the best breeding sow over two years old, 20 00
350. For the second best, 10 00

351. For the best sow not less than 6 months and under 18 months old, 15 00
352. For the second best, 8 00
353. For the best lot of pigs, not less than 5 in number, nor less than 2, and under five months old, 10 00
354. For the second best, 5 00

The large breed includes Chester, Russia, Bedford, Woburn, Grazier, Duchess County, native and grades.

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Small Breed.

355. For the best boar over two years old, 20 00
356. For the second best, 10 00
357. For the best boar one year old, 15 00
358. For the second best, 8 00
359. For the best breeding sow over two years old, 20 00
360. For the second best, 10 00
361. For the best sow, not less than 6 months nor more than 18 months old, 15 00
362. For the second best, 8 00
363. For the best lot of pigs, not less than 5 in number, nor less than two and under five months old, 10 00
364. For the second best, 5 00

The small breed includes Neapolitan, Suffolk, Sussex, Essex, Berkshire, Chinese, natives and grades.

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Additional Premiums to Premium Animals.

365. For the bull of three years old or more of any breed on exhibition,
366. For the best cow of any breed on exhibition,
367. For the best stallion of any breed on exhibition,
368. For the best brood mare of any breed on exhibition,
369. For the best ram of any breed on exhibition,
370. For the best ewe of any breed on exhibition,
371. For the best boar of any breed on exhibition,
372. For the best breeding sow of any breed on exhibition,

} Certificates of Merit.

POULTRY.

Chickens.—1st Class.

373. For the best pair Cochin China, 2 00
374. For the best pair Imperial China, 2 00
375. For the best pair White Dorkings, 2 00
376. For the best pair Red Chittagong, 2 00
377. For the best pair Gray Chittagong, 2 00
378. For the best pair Black Poland, 2 00
379. For the best pair White Poland, 2 00
380. For the best pair Silver Pheasants, 2 00
381. For the best pair Golden Pheasants, 2 00
382. For the best pair Spangled Hamburg, 2 00
383. For the best pair white or red game, 2 00
384. For the best pair Bramah Pootra, 2 00
385. For the best pair Virginia game, 2 00
386. For the best pair Black Spanish, 2 00
387. For the best pair Indian Mountain, 2 00
388. For the best pair Wild Indian game, 2 00
389. For the best pair Sumatra game, 2 00
390. For the best pair Ostrich game, 2 00
391. For the best pair Bolton grays, 2 00
392. For the best pair Sea-bright Bantams, 2 00
393. For the best pair Java Bantams, 2 00
394. For the best pair Great Malay, 2 00
395. For the best pair Jersey Blues, 2 00

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Turkeys.—2nd Class.

396. For the best pair common Turkeys, 2 00
397. For the best pair wild Turkeys, 2 00
398. For the best pair crested Turkeys, 2 00

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Geese.—3rd Class.

399. For the best pair common Geese, 2 00
400. For the best pair wild Geese, 2 00
401. For the best pair China Geese, 2 00
402. For the best pair Bremen Geese, 2 00
403. For the best pair Poland Geese, 2 00
404. For the best pair African Swan Geese, 2 00

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Ducks.—4th Class.

405. For the best pair of white Poland Ducks, 2 00
406. For the best pair Muscovy Ducks, 2 00
407. For the best pair Aylesbury Ducks, 2 00
408. For the best pair common Ducks, 2 00
409. For the best pair summer Wild Ducks, 2 00

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5th Class.

410. For the greatest variety of Poultry by one exhibitor, 10 00

BRANCH V.

AGRICULTURAL IMPLEMENTS.

Remarks and Special Rules for Branch V.

All machines, implements, or other products of mechanical art, must be exhibited by or for their respective makers or inventors or improvers, to or for whom only, premiums for such articles must be awarded. Persons who hold such articles by purchase, or as matters of traffic, will have no claim to a premium.

Every machine or implement offered for premium, must be designated by the offerer by its commercial name, or otherwise such other concise description be given as will serve to identifiy it to future purchasers; and also the then selling price of the article must be stated and

marked on the labels and in the published reports of premium articles.

The judgment of superior value must have due regard to the cheapness and durability of any machine or implement, as well as to its more effective operation while in good working order.

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Class I.

Ploughs, Cultivators, &c.

411. For the best 3 horse plough, $10 00
412. For the best 2 horse do, 10 00
413. For the best single do, 10 00
414. For the best shovel do, 5 00
415. For the best sub-soil do, 5 00
416. For the best new-ground, or coalter plough, 5 00
417. For the best hill-side plough, 5 00
418. For the best cultivator for corn, 5 00
419. For the best cultivator for tobacco, 5 00
420. For the best cultivator for two horses, 5 00
421. For the best wooden-frame harrow, 6 00
422. For the best iron-frame harrow, 6 00
428. For the best drain and furrow plough for opening water furrows, 20 00

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Class II.

Drills, Broadcasters, &c.

424. For the best broadcasting or drilling machine for sowing grain and grass seed, $20 00
425. For the best wheat drill, 20 00
426. For the best broadcasting machine for sowing guano, 20 00
427. For the best lime spreader, 20 00
428. For the best corn planter, 10 00
429. For the best seed drill, 3 00
430. For the best attachment to drill for drilling guano, 15 00
431. For the best implement for sowing and covering peas among corn, at or immediately following the last tillage, and either with or without guano, 15 00

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Class III.

Wagons, Carts, Harness, &c.

432. For the best wagon for farm use, $10 00
433. For the best dumping wagon, 20 00
434. For the best horse cart, 8 00
435. For the best ox cart with iron axle, 20 00
436. For the best wagon-body, or ladder, for hauling wheat in the sheaf, or hay, or straw, 5 00
437. For the best set of wagon harness, 5 00
438. For the best harness for horse cart, 2 50
439. For the best ox yoke, 2 50

Class IV.

Rollers, Clod-Crushers, and Farm Gate.

440. For the best smooth roller, $10 00
441. For the best pegged roller, to be exhibited by model, 20 00
442. For the best clod-crusher, 20 00
443. For the best farm gate, including best hinge and fastening, to be exhibited by model, 5 00

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Class V.

Horse-Powers, Threshers, Separators, &c.

444. For the best sweep horse-power, $25 00
445. For the second best sweep horse-power, 10 00
446. For the best threshing mach'n, 20 00
447. For the best machine for threshing, cleansing and separating wheat at one operation, 30 00
448. For the best machine for gathering clover seed, 20 00
449. For the best machine for hulling and cleansing clover seed, 20 00

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Class VI.

Straw and Root Cutters, Cornshellers, Mills, &c.

450. For the best hay or straw-cutter, for horse-power, $10 00
451. For the best hay or straw-cutter, for hand-power, 5 00
452 For the best horse-power cutter, for cutting cornstalks for fodder, 15 00
453. For the best cornsheller for horse power, 10 00
454. For the best cornsheller for hand power, 5 00
455. For the best grist mill for horse power, 10 00
456. For the best hominy mill, 5 00
457. For the best saw-mill, for farm use, 10 00
458. For the best corn and cob crusher, 10 00
459. For the best root cutter, 2 50
460. For the best bone crusher, 20 00
461. For the best steam boiler for cooking food for stock, 20 00

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Class VII.

Fan Mill, Hay Press, Ditching Machine, &c.

462. For the best fanning mill, $10 00
463. For the best hay press, 15 00
464. For the best stump machine, 30 00
465. For the best ditching machine, 30 00
466. For the best rotary digger, 30 00
467. For the best steel spade fork, 5 00
468. For the best horse rake for hay, 5 00
469. For the best gleaner, 3 00

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Class VIII.

470. For the most extensive and valu-

able collection of useful machines and implements exhibited and made at any one factory, whether including subjects for other premiums or not, a premium of $25 00

Class IX.

Miscellaneous.

471. For the best pump adapted to deep wells, $10 00
472. For the best water-ram in operation, 10 00
473. For the best scoop or scraper, 10 00
474. For the best levelling instrument, suitable for draining operations, 10 00
475. For the best churn, 4 00
476. For the best sausage cutter, 2 00
477. For the best washing machine, 2 00
478. For the best sewing machine, 10 00
479. For the best machine for shearing sheep, 15 00

Class X.

Agricultural Steam Engine.

480. For the best steam engine applicable to agricultural purposes generally, as a substitute for horse power, $50 00

Ploughing Match.

481. For the best ploughman with horses, 10 00
482. For the second best ploughman with horses, 5 00
483. For the best ploughman with steers, 10 00
484. For the second best ploughman with steers, 5 00
485. For the best dynamometer, 10 00

Class XI.

Trial of Ploughs.

485. For the best two-horse plough adapted to the section in which trial is to be instituted, $20 00
487. For the best three or four-horse plough adapted to the section in which trial is to be instituted, 20 00

There shall be three separate trials of ploughs; one for the Tide-water; one for the Piedmount; and one for the Trans-montane section of the State. These trials shall be held respectively, after due public notice, at such times and places as shall be appointed by the Chairman of the Committee of Award for the section in which the trial is to be made.

The Judges will award the premiums offered, only to such implements as may be deemed fully worthy of that distinction.

The relative merits of all the ploughs submitted for trial shall be tested upon each of the several points contained in the following scale, and full report thereof shall be made to the Executive Committee.

Scale of Points for Ploughs.

1. *Economy of Power*, or the least resistance to draught according to depth and width of furrow, 20
2. *Facility in changing the set*, so as to give more or less land, or greater or less depth, without disturbing the proportionate width of furrow and without alteration of harness, 10
3. *Steadiness of action*, with as little labor to the ploughman as comports with the proper control and guidance of the plough, 10
4. *Adjustment of all the parts in harmonious relation to each other*, so that each shall duly perform its appropriate function, 15
5. *Effectiveness of operation*, cutting a furrow, the width of which shall bear a due proportion to the depth thereof, and also cutting the furrow slice of uniform thickness and lifting and turning it at the proper angle with the least degree of friction, 25
6. *Strength, durability and simplicity of construction*, 10
7. *Price and facility and economy of repairs*, 10

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Class XII.

Trial of Reaping and Mowing Machines.

488. For the best reaping machine, $50 00
489. For the best mowing do, 25 00

To be tested according to the scale of points to be prescribed by the Committee of Arrangements, and at such time and place as the Executive Committee may hereafter designate.

BRANCH VI.

FRUITS AND FRUIT TREES.

490. For the best and largest variety of apples suitable for Southern raising, each labelled, $10 00
491. For the best and largest variety of pears, 8 00
492. For the greatest number of choice varieties of different kinds of fruit, 10 00
493. For the best and largest collection of apple trees, suitable for Southern raising, 10 00
494. For the best pear trees, 10 00
495. For the best peach tress, 10 00
496. For the best fig trees, 5 00
497. For the best grape vines, 5 00
498. For the best strawberry vines, 3 00
499. For the best raspberry plants, 3 00
500. For the best bushel dried apples, 3 00
501. do do peaches, 3 00
502. Model or drawing of the best kiln for drying fruit, 10 00

FLOWERS.

503. For the largest and choicest collection of plants, $10 00
504. For the second best, 5 00
505. For the best and greatest variety of dahlias, 3 00
506. For the best twelve dahlias, 2 00
507. For the greatest variety of roses, 5 00
508. For the best twenty-five roses, 2 00
509. For the best and largest collection of chrysanthemums, 3 00
510. For the best floral ornament, 5 00
511. For the best hand boquet, not more than eight inches in circumference, 2 00
512. For the best and largest collection of verbenas in bloom, 3 00
513. For the best and largest collection of evergreens, 5 00
514. For the best and largest collection of hardy, flowering shrubs, 5 00

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VEGETABLES.

515. For the largest and best assortment of table vegetables, $10 00
516. For the best dozen long blood beets, 2 00
517. For best dozen head of cabbage, 2 00
518. For the best dozen cauliflower, 2 00
519. For the best dozen broccoli, 2 00
520. For the best dozen carrots, 2 00
521. For the best dozen egg plants, 2 00
522. For the best peck of onions, 2 00
523. For the best dozen parsnips, 2 00
524. For the best bushel of Irish potatoes, 2 00
525. For the best bushel of sweet potatoes, 2 00

BRANCH VII.

BUTTER AND CHEESE.

526. For the best specimen of fresh butter, not less than ten pounds, 10 00
527. For the second best specimen of fresh butter, not less than five pounds, 5 00
528. For the best firkin or tub of salted butter, not less than six months old, 10 00
529. For the second best firkin or tub of salted butter, not less than six months old, 5 00
530. For the best cheese, not less than 20 pounds, 10 00

The method of making and preserving the butter and cheese to be stated by the exhibitor.

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Honey, Bee-Hives and Bacon Hams.

531. For the best specimen of honey, not less than 10 pounds, 5 00

The honey to be taken without destroying the bees—the kind of hives used, and the management of the bees to be stated by the exhibitor.

532. For the best bee-hive, 10 00
533. For the best ham cured by exhibitor, 8 00
534. For the second best, 4 00

Manner of curing to be described by exhibitor, and the hams exhibited to be cooked.

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Household Manufactures.

CLASS I.

535. For the best quilt, 5 00
536. For the second best quilt, 4 00
537. For the best counterpane, 5 00
538. For the second best counterpane, 4 00
539. For the best pair home-made blankets, 5 00
540. For the best home-made carpet, 5 00
541. For the best home-made hearth-rug, 3 00
542. For the best set home-made curtains, 5 00
543. For the second best set home-made curtains, 3 00
544. For the best piece, not less than 7 yards home-made negro shirting, 3 00
545. For the best piece, not less than 10 yards, winter clothing for negroes, to be woven by hand, 5 00
546. For the best piece, not less than 10 yards, heavy woollen jeans, to be woven by hand, 5 00
547. For the second best piece, not less than 10 yards, heavy woollen jeans, to be woven by hand, 3 00
548. For the best piece linsey, not less than 7 yards, to be woven by hand, 5 00
549. For the second best, 3 00

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CLASS II.

550. For the best fine long yarn hose, 3 00
551. For the best fine long cotton hose, 3 00
552. For the best silk hose of home-made silk, 5 00
553. For the best specimen of home-made wine, 5 00
554. For the best home-made bread, 5 00
555. For the best home-made pound-cake, 3 00
556. For the best home-made sponge-cake, 3 00
557. For the best varieties home-made pickles, 3 00
558. For the best varieties home-made preserves, 3 09
359. For the best varieties home-made fruit jelly, 3 00
560. For the best sample home-made soap, the process of making to be described by the exhibitor, 5 00

—

CLASS III.

Ladies Ornamental and Fancy Work.

561. For the best specimen of embroidery, 8 00

562. For the second best, 6 00
563. For the best specimen of worsted work, 8 00
564. For the second best, 6 00
565. For the best specimen of crotched work, 8 00
566. For the second best, 6 00
567. For the best specimen of wax work, 8 00
568. For the second best, 6 00
569. For the best specimen of shell work, 8 00
570. For the second best, 6 00
571. For the best specimen of ornamental leather work, 8 00
572. For the second best, 6 00
573. For the best specimen of block work, 8 00
574. For the second best, 6 00
575. For the best specimen of knitting, 8 00
576. For the second best, 6 00
577. For the best specimen of netting, 8 00
578. For the second best, 6 00
579. For the most extensive variety of useful ornamental and fancy work, not excluding articles which may have had premiums awarded them under any of the above specifications, 10 00

DOMESTIC MANUFACTURES.

CLASS I.

580. For the best flour of white wheat,
581. For the best flour of red wheat,

CERTIFICATES OF MERIT.

CLASS II.

582. For the best manufactured tobacco,

CERTIFICATE OF MERIT.

CLASS III.

583. For the best shod horse, 5 00
584. For the best horse shoe, 5 00

CLASS IV.

585. For the best pair bed blankets,
586. For the best pair servant's blankets,
587. For the best piece of woollens,
588. For the best piece of cotton cloth,
589. For the best piece of cloth or webbing, suitable for horse collars and harness,
590. For the best and greatest variety of coarse, strong and cheap shoes,
591. For the best and cheapest wool hats,
592. For the best collection of coarse woollen fabrics for farm purpose,

CERTIFICATES OF MERIT.

CLASS V.

593. For the best dozen baskets of different kinds made in Virginia, of Virginia grown material, 5 00
594. For the best set of plantation hampers or baskets, not less than three in number, 5 00

CLASS VI.

595. To the first individual in Virginia who shall establish and maintain in successful operation for six months, a factory for tubular draining tiles, on the most improved plan, a premium of 50 00
596. For the best and cheapest specimens of tubular draining tiles, 5 00

BRANCH VIII.

Honorary Testimonials to each individual of Virginia who, previous to 1857, has discovered or introduced, or brought into use, any principle, process or facility, generally or any improvement by which important value has been gained for the agricultural interests of Virginia.

BRANCH IX.

CLASS I.

Special Premiums for any useful subjects not embraced under any of the foregoing heads.

597. Discovery in Virginia of mineral phosphate of lime in sufficient quantity to be valuable for sale and distant transportation as manure, a premium of 50 00

If more than one claimant, the most valuable discovery to have the award.

CLASS II.

598. For the best drained farm, or part thereof, the formerly wet and then well drained portion of land to be not less than one hundred acres. The superiority of claim to be determined by the extent and labor of the works, their fitness and successful results, the amount of benefits produced, and of profits made by the operation, a premium of 50 00
599. For the best drained 20 acres, to be determined in like manner, a premium of 20 00
600. For the best drained farm by open ditches, and water furrows, reference being had to costs, 20 00

To obtain the first and second named premiums, it is required that the claimant shall present an accurate map, or ground plan, of his drained land, and of the principal drains, with approximate and sufficiently correct representations of all necessary minor points; also profiles or levelled lines of cross-sections and the principal lines of drains; together with a sufficiently clear written description of the whole work and the general results thereof.

CLASS III.

601. For the fullest and best chemical analysis of the whole vegetable product

of any good manuring variety of the Southern pea, in vines, leaves, roots and pods, at the time of the first pods being ripe—or of each of these products separately, and their relative dry weights stated—and also separately of another sample of like ripe seeds of the same variety—with the results (and particularly of nitrogen) stated, together and in comparison with the results, heretofore ascertained and published by chemists, of Indian corn, wheat, oats, European peas, clover, &c., a premium of 50 00

CLASS IV.

602. For the best plan of preserving wheat from the time of harvest until it is sent to market, including shocking, stacking and securing against weavil—to have been tested by satisfactory personal experience, and to be accompanied by full and accurate written descriptions and drawings if necessary, 15 00

BRANCH X.

Premiums offered by Individual Donors.

Premiums to be proposed of not less than twenty dollars value by any public spirited individual or association of individuals, who may thus desire to induce experiment, investigation, or discussion, on any particular subject of inquiry which shall come under the general objects of the Society. In any such case the premium shall be offered in and by the name of the individual donor, or association, but shall be awarded, as all other premiums, by the Executive Committee, acting under the general regulations of the Society. Offers under this branch may be made at any time, admitting of sufficient public notice thereof being given previous to the day of award.

The Rules and Regulations are deferred to a future issue of this paper.

RICHMOND CATTLE MARKET.

March 23, 1857.

Reported by Messrs. Crockett & Shook.

Beef cattle 6 to 6¼ gross—a No. 1. lot would bring 6½. Sheep 6 to 6½ gross. Hogs 9; in demand.

[For the Southern Planter.]

CATERPILLARS ON FRUIT TREES.

Messrs Editors.—Fruit, and fruit trees, have been somewhat of a hobby with me for more than 20 years; and as I have given my personal attention to the matter, I speak from experience.

Some 20 years since, I introduced into my neighborhood, some 50 varieties of select fruit from the nursery of Messrs James Sinton & Sons, near Richmond. We are now getting amply repaid for the small sum invested.

I was to day engaged in clearing my trees from the eggs of the Caterpillars, and as many of your subscribers may not be aware that winter or early spring is the best time to get rid of that nuisance, I concluded to drop you a short article on the subject. The eggs are laid in the fall, and are very nicely glued on the small branches, at the outer end of the limbs.

The twigs being about the size of a pipe stem, a practical eye will soon detect them, there being a slight bulb, nicely worked on the twig, usually from 1 to 6 inches from the end, and it frequently happens, that there are two, three, or more cocoons near each other. I enclose you a twig on which you will find five.

My attention was drawn to this matter many years ago, by tracing the path of the young caterpillar, from his web to the eggs; and in this way clearing my trees of the pest in early spring; but of late years, I prefer hunting them out from November till 1st April, as I may have leisure.

My plan is to get a light pole an inch or a little more in diameter, in which I drive two nails, (one will do,) forming an accute angle,—this is for a hook to pull down the limbs so as to pinch off the eggs, the pole may be from six to ten feet long. When the eggs are so high on the tree that I cannot reach them with the hand, I insert the twig between the nail and pole, and twist it off.

In young, well pruned orchards, most of the eggs can be found—what are missed, should be followed up and destroyed as soon as they begin to form a web. From the dry fall, I am of opinion that we are to have a full crop of caterpillars this year. The orchadist should go to work at once.

Much of the peach fruit is killed, but there is still some left. The apple bud is also somewhat injured, but I hope enough for table and culinary purposes are saved, and we may have a fair crop.

Snow fell with us on the 13th full 4 inches deep. Tho most of it will pass off to day (16th)

The spring bids fair to be a late one.

Your friend &c.,

HENRY B. JONES.

Near Brownsburg, Rockbridge Co., Va. 16th March, 1857.

HINTS ON TOBACCO HOUSES.

Dear Ruffin—I send this as an addendum to the article in your February number on "Building Tobacco Houses," by W. W. M. of Gale Hill. You can take it as advice to yourself, or as a communication to the Planter, as you may think best.

Every planter should have at least one house located upon a steep hill side, facing south or east, and as near as practicable to a branch or river flat. Into the hill-side should be dug a *cellar*, with stone or brick walls at least six feet high, wherein the crop is to be bulked down. In such a cellar you may expect to find tobacco in all weather in good stripping order. The economy of plantation labor requiring that the stripping should be done in the cold weather of winter, when hands cannot do full work out of doors, it is very important that tobacco bulks should be found at all times in the same order in which the crop was struck down. Hill-side houses have this other advantage; the labor of one or two hands is saved in hanging by delivering the tobacco directly from the wagon into the second or third tier through a door in the back of the house. A tobacco house protected by the hill from the north and west winds, and situated near a stream of water, will bring tobacco in order with a slight season, which is sometimes a very great advantage.

I would shed a tobacco house upon but *one side*—the south or east; and this only with a view to getting a prize and stripping room. It is a great mistake to shed a tobacco house all round; first, because shedding is the most expensive of all room in proportion to the quantity of tobacco cured therein; secondly, because it is impossible to cure a crop partly in the house and partly in sheds with uniformity of color; and lastly, sheds prevent the tobacco in the body of the house coming readily in order. The stripping room should be at least 20 feet wide, so as to allow the strippers to set on each side of the fire and have room enough behind them to lay the tobacco they are tying.—It should be close and furnished with glass windows, so placed as to admit the light to as late an hour as possible in the evening.

The prizes should be framed in with the building so as to mortice into the joists the tops of the prize stumps, and fixed swords and fix pullies for raising the beams. The prize sills should be held in place by cross sills of locust let into the walls of the house and shed. There should not only be a "bonnet" in the comb of the roof, but one on each side, midway of the roof, where the house is as much as 24 feet wide. These, with an opening at the eaves, will let out the heat and smoke during the process of firing, and through them the wind does not drive in and break the cured tobacco, as in the case with open gables. In this, as in all other buildings, commence at the bottom and don't stick your house up on blocks and trust to *underpinning*. This kind of masonry is always imperfectly done and liable to tumble down. The only other suggestion I have to make is this: provide yourself with more house room than you ever expect to want, for big tobacco delights in *elbow room*.

Yours, truly,
R. W. N. N.

Roy, March 20, 1857.

[For the Southern Planter.]

WOOD-PECKER SAW MILL.

A period of progress and improvement in any science, profession, or department of human industry, is also apt to be, to some extent, a period of empericism and humbug. The call for what is excellent is sure to be answered, partially at least, by counterfeits. The present demand for money-saving and labor-saving agricultural implements has frequently been met by inventions which save the labor and the time of the maker, but consume the time, and exhaust both the purse and the patience of the farmer—where there is such liability to imposition, it is both a duty and a privilege to commend what is really excellent. I discharge this duty and enjoy this privilege in recommending confidently and warmly to brother farmers, the Wood-pecker Saw Mill, manufactured by Mr. John Haw, of Hanover co., Virginia.

In this case, I can say "we speak that we do know." I have one of these mills in operation on my farm, and I have no hesitation in saying that it accomplishes much more than the modesty of the man-

ufacturer has claimed for it. It is durable, cheap, simple and efficient. The mill can be attached to the horse-power of any wheat thresher, and the draft is decidedly less than is required to drive a six horse power wheat machine. It will saw with ease from 1200 to 1500 feet of plank or scantling in a day, and this it will do with more safety, and in better manner than it can be done by either a perpendicular or circular saw driven by water or steam—cutting a smoother surface it leaves less work for the plain than the circular saw, while at the same time it is less liable to wabble and get out of line. "All is indeed grist that comes to this mill." It cuts with unvarying impartiality through knots, snarls, and "bull faces," and walks, with an appetite, into any sort of timber that is put before it. I have employed, about this mill, three hands—one to drive, and two to aid the driver in rolling the logs on the carriage; but I have no doubt the mill might be placed on a hill side, or in a bottom, so that only two hands would be required to roll up the logs.

This is *the* thing for farmers who wish to saw timber for buildings or fences in the most expeditious manner, and on the cheapest terms.

S. S. GRESHAM.

Newtown, March 21st, 1857.

COST OF KEEPING WORK HORSES AND OXEN.

In the usual haphazard management of many farmers, they never seem to figure the cost of any crop they raise, or ever attempt to reckon the cost of rearing to a given age their several kinds of stock, or even dream of the expense of keeping a work horse or yoke of oxen. It might be difficult to arrive at the exact cost of wintering a yoke of oxen on many farms, as they are at times fed on meadow, then on English hay, straw, corn-fodder, nubbings, of corn, &c.; but in this way of feeding through the foddering season a pair of seven feet oxen, the actual expense may amount to more than many farmers are aware of.

We have some facts showing the cost of feeding a span of horses and a yoke of oxen for one year, when fed on hay and Indian meal, and kept constantly at work. Of course, the size of horses and oxen varies greatly, as also does the price of hay and corn in different sections of the country. As a general rule, it is supposed that the quantity of food required by an animal, is in proportion to the weight of the horse, ox, or sheep. Thus, a horse weighing 800 lbs, would require but two-thirds the food of one weighing 1,200 lbs. So of oxen—a yoke weighing 3,000 lbs. would require one-third more food than a pair weighing but 2,000 lbs. We do not say the above rule is perfectly accurate, but taken in connection with some accurate statements of feeding that we shall cite, we think it may afford a tolerable data by which the farmer can calculate, something near, the expense, per week or month, or keeping a horse of yoke of oxen.

We copy from the "Agriculture of Massachusetts, for 1855," the statements of W. F. PORTER, Esq., of Bradford, Mass., on the cost of feeding work horses and oxen, when kept on hay and meal. He says:

"I have kept from six to ten oxen and four horses for the past five years, until last spring, when I dispensed with oxen altogether. I have learnt by actual experience. the cost of keeping to be as follows: A pair of horses, weighing twelve hundred pounds each, will work every fair day during the year ten hours, and keep fat on six quarts of Indian meal and sixteen pounds of good hay each per day. A pair of oxen, girting nine feet, or weighing thirty or thirty-two hundred weight, will require four quarts of Indian meal and thirty pounds of good hay each, per day, provided they are kept at work as many hours as the horses. The cost of keeping a pair of horses as above, would be, at prices in this vicinity at this time, thirty-two pounds of hay per day, at $25 per ton, forty cents—twelve quarts of Indian meal, $1.12 per bushel, forty-two cents—total, eighty-two cents, or $299.30 for one year. Keeping one pair of oxen one day, sixty pounds of hay, $25 per ton, seventy-five cents; eight quarts Indian meal, $1.12 per bushel, twenty-eight cents—total, for one day, $1.03, or $375.95 for one year."

These figures will astonish many farmers; but the horses and oxen were extra large, and so were the prices of hay and corn.

Some two or three years since, Gen. W. P. Riddle of Manchester, N. H., informed us that he had kept a pair of his work horses for the (then) past three years, on the daily allowance of four quarts of Indian meal and three pecks of cut hay to each horse. On this allowance it requires about one bushel of corn per week, or 52 per year, and one ton of the best quality of English hay, for feeding a horse for one year. Corn at $1 per bushel, and hay at $15 per ton, (the price of each at that time,) makes the cost of feeding a pair of horses on Gen. R.'s plan amount to $134 per year. We saw the horses, and think they weighed not far from 900 lbs. each.

A few years since, we owned a pair of seven-feet oxen. In the month of May we purchased a given quantity of good hay at $12 per ton, and corn at $1 per bushel. The oxen worked six days in the week. The cost of feeding amounted to $4 50 per week, or 64½ cents per day, (39 cents per day less than Mr. Porter's estimate,) yet the expense of feeding a yoke of seven-feet oxen, as it cost us, would amount to $234 per year, to say nothing of shoeing, taxes, interest on their value, risk of sickness, accidents, &c.—*Query*—What should the farmer tax per day for the use of his oxen when he "works out," hauling wood, manure, ploughing, &c., for his neighbor?—*Country Gentleman.*

Introduction of Plants into England.—Pineapples were first grown by Rose, gardener to Charles II. Sir Walter Raleigh introduced the potato. Sir Anthony Ashley, the ancestor of Lord Shaftesbury, first planted cabbages in this country, and a cabbage appears at his feet on his monument. Figs were planted in Henry VIII's reign, at Lambeth, by Cardinal Pole, and it is said that the identical trees are yet remaining. Spleman, who erected the first paper mill at Dartford, brought over the two first lime trees, which he planted at Dartmouth, and which are still growing there. Thomas Cromwell enriched the garden of England with three different kinds of plums. It was Evelyn, whose patriotism was not exceeded by his learning, who largely propagated the noble oak in this country; so much so, that the trees which he planted have supplied the navy of Great Britain with its chief proportion of the timber. Cherries were first planted in Kent, by the Knight Templars, who brought them from the East; and the first mulberry trees were also planted in Kent by the Knights of St. John of Jerusalem.

THE SOUTHERN PLANTER.

TO ADVERTISERS.

LIST OF PAYMENTS

From March 1, to March 23.

All persons who have made payments early enough to be entered, and whose names do not appear in the following receipt list, are requested to give immediate notice of the omission, in order that the correction may be made in the next issue:

S A Brock, Nov. 1857 2 00
W A Barnes, July 1857 1 00
E W Dudley, " 1 00
J Barnes, " 1 00
Danl Fisher, " 1 00
Jas B Dyer " 1 00
R W Old, " 1 00
N B Richardson, Jan 1857 1 25
John B Downman, Jan 1858 2 00
D E Jiggitts, " 2 00
H L. Plummer, " 2 00
W P Coe " 5 00
R T W Duke, May 1858 5 00
H A Kite Jan 1858 2 00
Wm H Fowlkes, July 1857 1 00
Geo Gorton, Jan 1858, 2 00
Wm O Slade, July 1857 1 00
M L Anderson, Jan'y 1858 2 50
E. G Leigh, " 3 00
John Goodwin " 5 00
P J Fowlkes, " 3 25
J S Nicholas " 2 00
Geo W Perkins, Jan 1868 4 00
Dr Wm [illegible]ristian Jan 1858 2 00
T K Miller, " 1 50
J H Ellerson, " 2 00
A E Jenkins, " 2 00
J L Deans " 2 00
W B Gates, " 1 25
N C Crenshaw, " 3 25
Wm P Tate, March 1857 1 66
Wm Griffin, January 1853 2 00
A W Womack, " 2 00
H S Hathewav, " 2 00
R Terrill, January 1860 5 00
Wm Davis White Jan 1858 5 00
R Sayers, July 1857 2 00
Geo Laurence, January 1858 2 00
G F Harrison, Oct 1853 3 00
H M Baker, March 1853 2 00
James W Graves, Feb 1857 1 42
Charles T Graves Jan 1858 1 33
Wm L Harrison " 2 00
N B Massenburg, " 2 00
H T Jones July 1856, 7 50
J E Perkinson, Jan 1853 4 50
H Fitzhugh, " 1 00
J W Old, " 4 00
D Malbane, " 2 00
Col J W Lewis. " 2 00
W M Marshall, " 2 00
John B Spencer, March 1857 1 35
Jas Massie, Sep 1856 1 00
A Gills, Oct 1857 1 00
J A Bell, Jan 1857 1 00
John M Venable, Jan 1858 4 00
H Sigourney " 2 00
W T Walters " 2 00
Dr A W Downey, Jan 1857 2 00
John Frost, July 1857 1 00
James M Johns, Jan 1853 1 00
R B Hendrick, " 2 00
S W Tunstall, March 1857 2 92

Col R W Carter, Jan 1858 2 00
P C Hungerford, " 2 00
Ro Campbell, " 1 00
John T Clarke, " 2 00
W N Parker, " 2 00
Alexander Kerr, " 2 00
L M Coleman " 2 00
J Jarratt, April 1857 1 00
Wm Massie, January 1858 2 00
Jos S Spengler " 1 00
Wm M Harris " 2 00
Geo O Fortune, " 2 00
John J L Stevens, " 2 00
A W Harris, " 2 00
Jos Ligon " 2 00
J B Strong, " 2 00
James W Dadney, " 2 00
J B Branham, Jan 1856 6 00
John C Mitchell July 1853 5 00
D S Cox, Jan 1856 6 00
W B Hudnall, July 1856 2 25
Thomas Nicholls " 3 75
R. L. Wright, 15 May 1857 1 25
Capt J Morton, Jany 1858 2 58
E R Coke " 2 00
Ro R Wilson, " 2 00
L Elam, " 3 00
Dr P H Anderson " 1 00
J H Enstace, " 2 00
W W Hancock, " 2 00
D B Hancock, " 2 00
Dr T W Neal " 2 00
E S Coleman, " 3 25
Col F Yates, " 2 00
M Davis, Jr., March 1857, 1 67
Wm E Meade, Jan 1859 4 00
R L Hurt, Jany 1856 1 25
James Allen, January 1858, 2 00
W B Irby January 1858 2 00
R L Hurt, June 1857 1 00
Geo H. Toler, Jan 1857 94
E Cunningham, Jan 1858 2 00
Bev. Randolph, " 2 00
Wm S Turner, July 1856, 6 00
R E Farrar, Jany 1858 2 00
V M Eppes, " 3 00
Dr W J Dupuy, " 2 50
G T Thomas, May 1858 2 00
E C Lindsay, 3 00
Thomas Wood, April 1857 1 45
Dr James L Jones, Jan 1858, 2 00
B Hoover, April 1858 2 00
J N Griffin, 15th March 1857, 1 00
J L Maury, Jan 1858 2 00
B B Keesee, " 2 00
J F Harper, " 2 67
R A Hundley, Jan 1858 2 00
T P Devereaux, March 1860 5 00
Jos Hobson, Jan 1853 2 00
L B Hawkins, July 1856, 10 00
M Q Holt, January 1858 2 00
R H Allen, " 2 00
A B Davidson, " 2 00

Thos Hughes, " 2 00
C Rea, Dec 1857 2 00
F Modena, January 1858 2 50
L W T Wickham " 2 00
John Jones, July 1856 6 00
Dr T J Wooldridge, Jan 1858 2 33
Col J A McCraw, Jan 1858 3 25
H Gravitt, " 2 00
N V Watkins, " 2 00
Dr W Perry, " 15 00
John Clarke, " 2 00
Wm G Friend, " 2 00
J M Sublett, " 2 00
Wm P Tucker, " 2 00
E Brummell, " 2 00
Ro Moir, " 4 50
P Fowlkes, " 2 00
Mrs S W Briggs, Mar 1857 1 00
Wm S Lane. July 1856, 5 00
Jos T Priddy, Jany 1858, 2 75
Jos Stinson " 7 50
Wm C Scott " 2 00
C Glover, " 2 58
Wm S Kemper, " 2 00
D W Waller, " 2 00
John W. Powell, " 2 00
J B Donovan, August 1857 1 00
Thos Sharp, Nov 1857 2 00
Julian C Ruffin, Jany 1858 2 00
Wm S Harris. July 1857 1 00
James L Harris, Jan 1858 3 00
Geo Hairston, Jr., Jan 1858 2 00
James L Harris, " 3 00
Wm T French " 2 00
J V Kirkpatrick, " 2 00
Geo B Trimble, " 2 00
Wm Jennings, Jan 1858, 7 62
Chas P Chilton, " 4 90
Dr. H Lewis, " 3 25
P F Boisseau, " 2 00
William Parrish, " 2 00
Dr. J W Morris, " 2 00
Dr. J M Hurt, " 2 00
James Newbold " 2 00
James C Cook, 15 Aug 1857 2 00
H N Pendleton, Jany 1858 1 50
G H Pendleton, " 1 50
Miss V L Harrison " 1 50
Thos G Turner, Jan 1859 5 50
B Dodson, Apl 1857 1 75
A Anderson, Jan 1857 1 25
W R Yates, January 1858 2 00
E Tarry, " 3 00
C Clarke. " 2 00
F H Perkins, " 3 25
E W Poindexter, " 3 00
A Hamlet, " 3 25
W S Dabney, Jan 1853 2 00
G W Turner, Jan 1858 2 00
Col J Dupuy, Jan 1858 2 00
John Sinton, " 3 00
T W B Edwards " 2 00
W H Hatchett, " 5 00

KETTLEWELL'S MANIPULATED GUANO.

NOTICE.

The arrangement heretofore existing between the undersigned in the manipulation and sale of "Reese's Manipulated Guano," has been by mutual consent discontinued, and the article hereafter will be manipulated and sold under their individual name and responsibility.

The advertisements heretofore published, and the certificates which have been and may hereafter be obtained in reference to the action of the article heretofore sold, to be used by both parties in their future business,

JOHN KETTLEWELL,
JOHN S. REESE.

November 10, 1856.

From the above announciation it will be seen that the "arrangement" heretofore existing between Mr. John S. Reese and myself, in the sale of the Manipulated Guano, branded "Reese's" Manipulated Guano, has been dissolved. The undersigned now offers to the Agricultural public the same article sold by them, and manipulated as that was, at his own works, and under the same superintendance.

After years of toil and sacrifice in search of a rival to compete with that great gormandiser of popular favor, Peruvian Guano, he may be pardoned in congratulating himself upon having originated the thought of an article, which all who have used, pronounce to be its superior and master, both for land anJ crop.

The high merits, peculiar combination, finely pulverised condition and adaptation of this article has already been extensively circulated by advertisement and pamphlet, during the above arrangement over the signature of Mr. John S. Reese. But after all, the whole thing is so plain and simple, so demonstrative, and practical, that it appears at once to the common sense of the consumer. The undersigned never yet saw a farmer who did not at the moment express his confidence and approval the instant he saw it. The mode of manipulation alone is beyond the reach of the Agriculmist. Mere mixture, the technical experiments of the undersigned proved would not do. It requires the most intimate combination, the closest integration, to produce a counter, or mutual action upon each other, of two elements, the ammonia and phosphate; affording of the first and the last precisely what the soil and the grain or the plant requires.—To effect this demands costly machinery, and experience to produce a necessary uniformity, and absolute combination. It is a perfect copartnership, based upon natural laws, Peruvian Guano is too fast and stimulates, Phosphatic Guano is slower and surer, hence a union of the two, in a way which providence first gives the intelligence to man, and then requires of him the industry and sagacity to develope for the complete supply of his wants. This seems to be the leading principle and design of the great giver of "every good and perfect gift." The minerals of the earth, the grain and the grass, the trees of the forest, the very water we drink, all seem to require the exercise of an industrial, or intellectual effort upon the part of mankind, to fulfil the various purposes for which they were bestowed upon him.

The object of the present, however, is simply to advise the public that hereafter he will sell the "Manipulated Guano" upon his own "individual responsibility," and that he accepts that responsibility in its every aspect of personal honor and integrity, as well as business energy and promptness: with an organization of arrangements that will command public confidence, afford the amplest facilities, and he hopes render a very large public service.

At a subsequent period he will give a more extended notice, and explanation of his "Manipulated Guano," besides (to the agriculturist) the result of some very interesting experiments which he made upon his own farm, (with certificates attached,) running thro' a period of two years previous to its introduction to the public. He will also embrace some letters from the most successful and intelligent farmers of the State, with whom he counselled during the progress of these experiments.

Certificates have been heretofore published under the "arrangement" of its entire and complete success, and to these will be added others of the most decided and satisfactory character. In the mean time he asks a fair and impartial consideration from that great interest, who are so deeply concerned in everything that tends to increase crop, improve soil, and reduce price. He will also give due notice of the location of his office in this city, (now at the wholesale Drug Store of Ober & Co., corner of Hanover and Lombard streets,) agencies in other States, and invites all who feel an interest in so important a subject, to fill up the leisure of their winter evenings by freely writing to him for whatever information they may desire, and which, he need not add, will be promptly given.

The Manipulated is offered at two qualities, No. 1 and No. 2. No. 1 is *warranted* to contain over 8 per cent. of Ammonia, and from 45 to 50 per cent. of phosphate of lime, and is sold at $48 per ton of 2,000 lbs. The No. 2 is warranted to contain by analysis 5½ per cent. of ammonia, and from 50 to 55 per cent. of bone phosphate of lime, and is sold at $43 per ton of 2,000 lbs. The name of the undersigned will be stencilled upon every bag, and future prices be governed by the price of Peruvian Guano. This article is no longer an experiment.

JOHN KETTLEWELL,
At the wholesale Drug Store of Ober & Co.,
Corner of Lombard & Hanover Sts. Balt.

A Plain Exposition of
Kettlewell's Manipulated Guano.

Its Origin, Chemical Theory, and Practical Results;
Embracing a certified demonstration of its superiority over Peruvian Guano, in the excess of a first crop, at the same time giving a durable improvement to the soil equivalent to Bone Dust, it being warranted in a legal sense to contain of the No. 1, 8 per cent. of Ammonia and 45 to 50 per cent. of Phosphate of Lime. By *John Kettlewell*.

In the March number of the American Farmer, I published a pamphlet with the above caption, from which I make the following quotation:

"The deficiency of phosphates, and the stimulation of ammonia is no where more readily seen than in the growth of the *Tobacco* plant. Dealers in the Tobacco leaf can almost tell tobacco grown by the use of Peruvian Guano. The large, thin, slender and flaggy leaf at once shows its paternity, whilst that grown from the "Manipulated Guano" abundantly supplied with the phosphates, exhibits that firm greasy appearance, observed in all tobacco grown upon new soil.—The attention therefore of tobacco planters is especially invited to this article—let neither prejudice, fear, imposition or apprehension of result, deter them from trying it, even if only as an experiment. The remarks apply with equal force to Wheat, Rye, Corn, Oats and grass."

The above pamphlet can be had either on application to myself, or to my agents in Richmond, Messrs. Hugh W Fry & Sons, or the general agent in Baltimore, G. Ober & Co., 6 Bowly's Wharf. Any information will be furnished by application to either of said parties.

No. 1 "Manipulated Guano" ½ phosphatic, ½ Peruvian, containing 8 per cent of ammonia, and 45 to 50 per cent. of Phosphates, warranted—$48 per ton of 2,000 pounds.

No. 2. ½ Peruvian, ⅔ Mexican, 5 per cent. ammonia, and 45 to 50 per cent. of phosphates, warranted—$43 per ton of 2,000 pounds.

Corn manure for the hill, $30 per ton of 2,000 lbs.

Potash and plaster for the improvement of the Tobacco leaf, $3 per barrel.

JOHN KETTLEWELL, or
G. OBER, General Agent for
the sale of "Kettlewell's Manipulated Guano," No. 6 Rowly's Wharf. April 1857.